User Guide

Acer SOHO Router
AIR-104 / AIR-204

Acer

Acer SOHO Router AIR-104/204
User Guide
February 2000

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About This User Guide

Acer welcomes you to the world of shared Internet access! Thank you for investing in an Acer SOHO Router AIR-104/204. We are dedicated to providing you with the most efficient, easy-to-configure, and trouble-free equipment in the networking industry.

This manual will help you become familiar with the AIR-104/204 . You will find helpful information covering everything from basic installation and set-up to advanced configuration and firmware upgrades.

If you are installing and configuring the AIR-104/204 for the first time, you should initially concentrate your attention on chapters 1-4. These chapters contain all the information you need to get your AIR-104/204 installed and configured in just a few minutes. After you've gotten started and the AIR-104/204 is providing shared Internet access for your entire network, you'll want to take a look at the next two chapters (chapters 5 and 6). These two chapters tell you about some more sophisticated functions that will allow you to get the most out of your AIR-104/204. Finally, when you're familiar with the features and operations of the AIR-104/204, chapter 7 provides nuts-and-bolts details about the Command Line Interface, a useful tool for displaying advanced system information and for troubleshooting.

This manual consists of seven chapters and three appendices:

Chapter One: *Introduction* explains the features and capabilities of the AIR-104/204.

Chapter Two: *Installation*, gives the simple steps you follow to install the necessary hardware.

Chapter Three: *Configuring PC's in the network*, shows you how to prepare the PCs in your network for communication with the AIR-104/204. Before you begin using the AIR-104/204, you will need to configure at least one PC so that it, in turn, can configure the AIR-104/204.

Chapter Four: *Basic Router Configuration*, explains how to prepare your AIR-104/204 to provide shared Internet access by means of a user-friendly, web-based configuration utility (the ICC). This chapter is the primary resource for using the AIR-104/204 to access the Internet.

Chapter Five: *Advanced Router Configuration*, explains the more high-powered tools that let you fine-tune the performance of the AIR-104/204.

Chapter Six: *Management*, tells you how to keep your AIR-104/204 up-to-date.

Chapter Seven: *The Command Line Reference*, tells you how to interact with the AIR-104/204 by means of the text-based Command Line Interface (CLI), which is necessary for certain advanced or emergency procedures.

Appendix A: *ICC Messages*

Appendix B: *Glossary*

Appendix C: *Specifications*

Appendix D: *Warranty, Copyright, EMI*

How to Reach Us

If you require technical support, please email:

netxus@acer.com.tw

Our website's URL is:

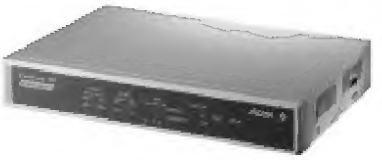
http://www.acernetxus.com.tw

Safety Warnings

- Before applying power to the AIR-104/204, make sure you are using a properly grounded electrical outlet.
- The AIR-104/204 is not intended to be serviced by the user. Please do not open the case.

Chapter 1 Introduction

Overview of the AIR-104/204



The AIR-104 and the AIR-204 are small desktop devices that mediate between your local area network (LAN) and the Internet. Each AIR-104/204 provides dual modem connections to access the Internet (the AIR-104 has two external modem ports, while the AIR-204 has one built-in modem and one external modem port). Your LAN connects to the AIR-104/204 via a four-port dual-speed Fast Ethernet repeater hub. The AIR-104/204 also features an auxiliary port for a directly connected management console. Data comes in to the AIR-104/204 from your local network and then is "directed" to the Internet, and vice versa. The AIR-104/204 dual-modem design allows connections to either one or two Internet accounts to be opened and managed automatically.

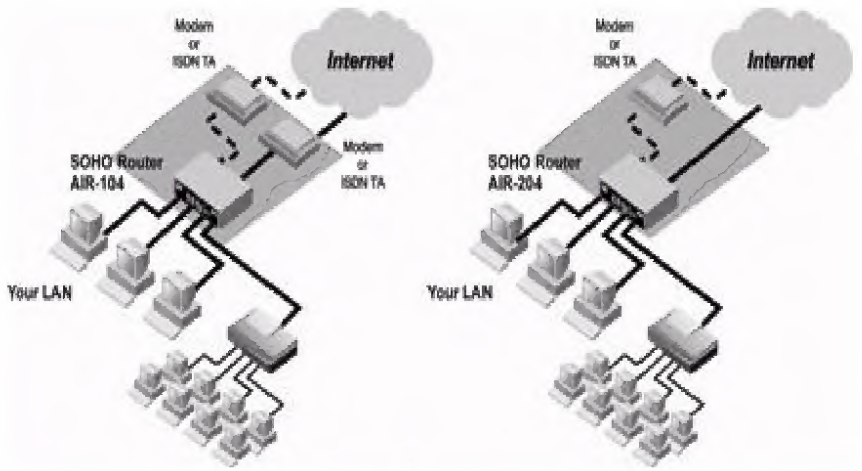


Figure 1-1 Internet Access with the AIR-104/204

Accessing the Internet

The AIR-104/204 provides shared Internet access, so that everyone on your LAN can surf the web and send/receive e-mail or files.

The AIR-104/204 utilizes single IP address technology that greatly simplifies the configuration process: the AIR-104/204 automatically acquires the necessary IP addresses when the connection to the Internet is established, and distributes access to your entire network. You don't need to apply for and assign an IP address to each PC or workstation on your network.

The AIR-104/204 features "bandwidth on demand". Any user's initial access of an Internet resource will cause a connection to the Internet to be set up automatically. As the traffic builds up (e.g., more users try to access the Internet, or the same user generates a lot of traffic), the AIR-104/204 will automatically establish a second connection through a second Internet account, if one has been configured. As traffic decreases, one Internet connection will be taken down, until finally, after a configurable period of inactivity, the remaining Internet connection will also be disconnected.

Security overview

More and more people are concerned about security of their data in this Internet era.

The AIR-104/204 provides many ways to help make your network and data secure:

- The AIR-104/204 uses a private IP addressing scheme that protects devices on your LAN from access by users from the Internet outside.
- All access to the AIR-104/204 (Console, Talent and the browser-based Internet Configuration Console) is protected by password verification.
- Internet access can be configured to occur only at certain times of the day and on certain days of the week.

What's in the box?

Your AIR-104/204 package should contain the items listed below.

* 1 AIR-104 or AIR-204
* User manual
* 1 Power Adapter, 12V DC, 1.5A input
* Cables:

Type of Cable	AIR-104	AtR-204
RS-232 Null Modem Cable	1	1
RS-232 Modem Cable	2	1
RJ-11 Telephone Cable	0	1

The connectors on the back

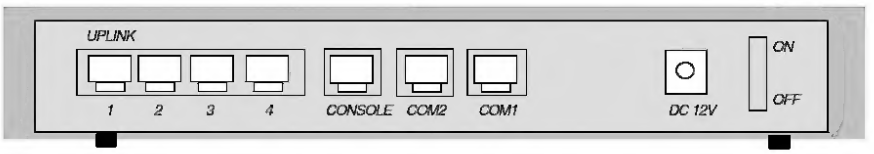


Figure 1-2 AIR-104 Back Panel

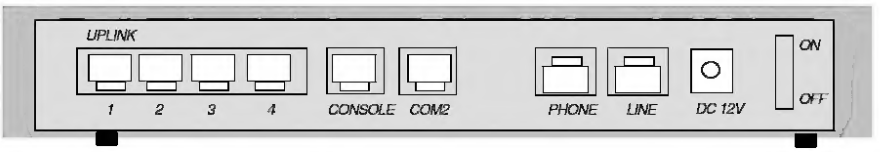


Figure 1-3 AIR-204 Back Panel

RJ-type connectors are used for all cable connection into your AIR-104/204 (except for the power adapter cord). The types of connectors and their cables are

- 4 RJ-45 10/100Base-T Ethernet connectors for connecting to PCs/ workstations (Node) or an Ethernet repeater hub (Hub). These accommodate standard Category 5 Ethernet cables.
- 1 RJ-45 connector for connecting to a console (or equivalent). This is a special null modem cable supplied with the device which has an RJ-45 plug on one end and a DB-9 "D" connector on the other end.
- 1 or 2 RJ-45 connectors for connecting to external modems. This is a special cable supplied with the device that has an RJ-45 plug on one end and a DB-25 "D" connector on the opposite end. The AIR-104 is shipped with two of these, and the AIR-204 is shipped with one.
- 0 or 1 RJ-11 connectors for connecting a telephone handset or fax machine to the AIR-104/204 via the built-in modem. Only the AIR-204 has this type of connector.
- 1 power connector for connecting through a power adapter (included as part of the product) to the wall power outlet.

The LEDs on the front

There are 20 LEDs on the front of the AIR-104/204 that show the status of the modem ports, the LAN ports, and the power. You can tell at a glance if your AIR-104/204 is functioning properly, and if there is any traffic passing through it.

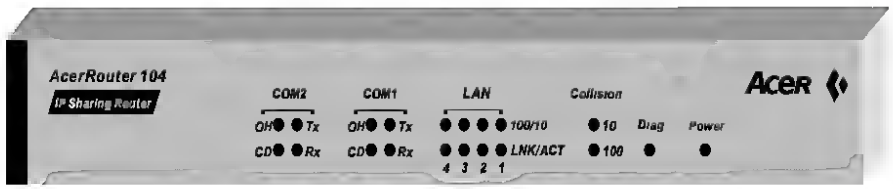


Figure 1-4 AIR-104 Front Panel LEDs

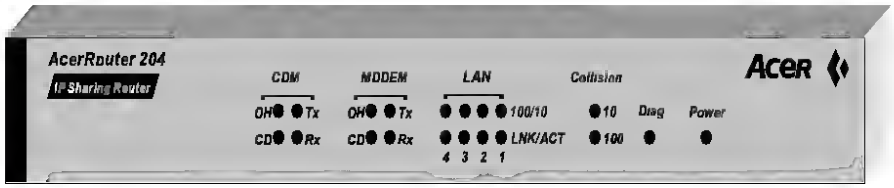


Figure 1-5 AIR-204 Front Panel LEDs

LED operation

The operation and meaning of the LEDs are described in the following table:

	Power	Diag	10-Collision	100-Collision	LAN 1-4		COM1 & COM2			
					100/10	LNK/ACT	Tx	Rx	OH	CD
COLOR	GREEN	ORANGE	ORANGE	ORANGE	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
ON	Power	Fail (or Diag still in process)	---	---	100 Mbps	Link active	---	---	Off hook	Line is connected
BLINK	---	---	Collision	Collision	---	Receiving data	Tx data	Rx data	---	---
OFF	No power	Diag OK	Normal	Normal	10 Mbps	No link	No data	No data	On hook	No connection

Chapter 2 Installation

Power

The AIR-104/204 comes with an external power supply. Plug the round end of the power cable into the DC 12V socket on the AIR-104/204, and plug the body of the power supply into an electrical outlet.

Modem connections

The AIR-104/204 can access the Internet utilizing either one or two modem connections, depending on the user's bandwidth requirements.

You will need at least one modem connection to access the Internet. The AIR-204 supplies this connection with a built-in 56K modem. The AIR-104 requires an external device, either a modem or an ISDN terminal adapter.

For both the AIR-104 and the AIR-204, a second modem connection may be made with an external device (either a modem or an ISDN terminal adapter).

First modem connection

AIR-104

Connect an external modem or ISDN terminal adapter to the COM1 jack on the AIR-104. Use one of the RJ-45 to DB-25 cables (supplied) to make the connection.

AIR-204

The AIR-204 contains an internal V.90 56Kbps modem. Connect the LINE jack on the AIR-204 to your telephone line. Use the RJ-11 to RJ-11 cable (supplied) to make the connection.

Additionally, you may connect either a telephone handset or a fax machine to the AIR-204 via the PHONE jack. Use another RJ-11 to RJ-11 cable (not supplied) to make the connection.

Second modem connection

Both the AIR-104 and the AIR-204 allow you to expand your Internet access by connecting an external modem or ISDN terminal adapter to the COM2 jack. Use an RJ-45 to DB-25 cable (supplied) to make the connection.

Network connections

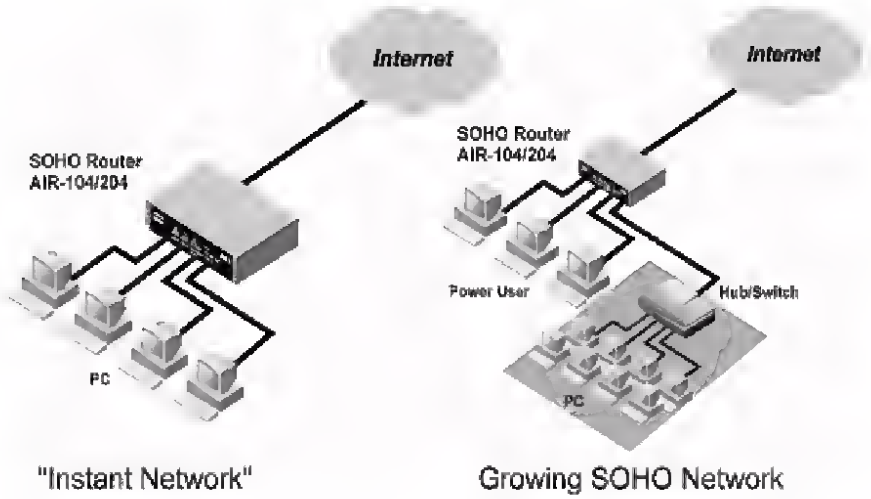


Figure 2-1 AIR-104/204 allows your LAN to expand

The AIR-104/204 includes a built-in 4-port Ethernet repeater hub. Each of these four LAN ports can directly connect to a PC to create an "instant network" of up to four PC's. LAN port 1 can be switched to UPLINK mode in order to connect to a network hub/switch, which in turn connects many PC's to create a larger network.

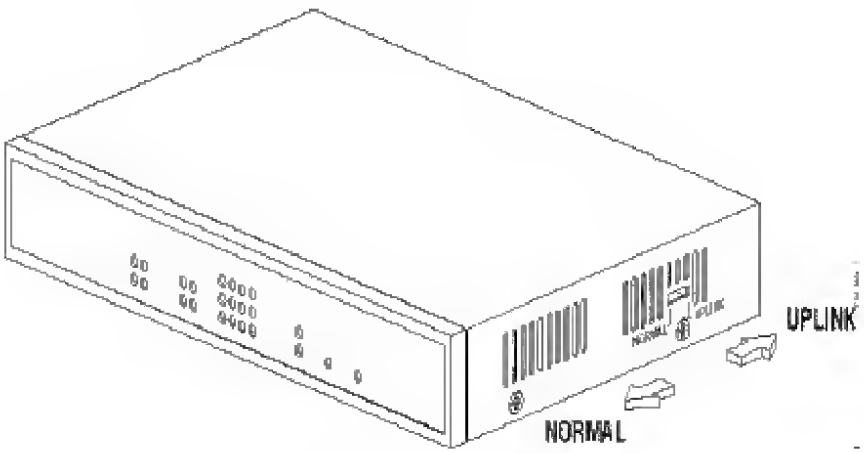


Figure 2-2 Uplink Switch

Connecting PC's directly to the router

LAN ports 2,3, and 4 on the AIR-104/204 are dedicated to NORMAL mode usage - they are intended to connect PC's directly. Connect the Ethernet network interface on your PC to LAN port 2,3, or 4. Use an RJ-45 to RJ-45 cable (not supplied) to make the connection. LAN port 1 may also connect a PC directly. The switch that controls the mode

of operation for LAN port 1 is located along the right edge of the router case (see Figure 2-2). Locate the switch and set it to NORMAL mode. Then use an RJ-45 to RJ-45 cable (not supplied) to connect LAN port 1 to your PC's Ethernet interface.

Connecting PC's to the router via a hub or switch

If your network contains more than four PC's, you will need first to connect the majority of your PC's to each other with an external hub or switch, and then connect that hub or switch to LAN port 1 on the AIR-104/204 (see Figure 2-1). In this configuration, LAN ports 2,3, and 4 on the AIR-104/204 can still directly connect to PC's as described above.

Step 1 Connect your PC's to the external hub or switch. Consult the manufacturer's instructions for direction.

Step 2 Connect a node port (one that would normally be used to connect a PC directly) on the external hub or switch to LAN port 1 on the AIR-104/204, using an RJ-45 to RJ-45 cable (not supplied). Locate the switch that controls the mode of operation for LAN port 1 on the AIR-104/204, and set it to UPLINK (this switch is located along the right edge of the router case). See Figure 2-2. If you are using a special uplink port on the external hub or switch to connect to LAN port 1 on the AIR-104/204 , then set the mode of operation for LAN port 1 on the AIR-104/204 to NORMAL.

Console connection

You may directly connect a console PC running terminal emulator such as HyperTerminal to the AIR-104/204. To make the connection, use the special RJ-45 to DB-9 cable (Null Modem Cable) supplied in the package. One end of the cable is a 9-pin DB-9 SCSI cable; plug this into either the COM1 or COM2 port of the console PC and turn the screws until finger-tight to seat. The other end of the connector cable is a standard RJ-45 network-cable plug; plug this into the CONSOLE jack on the AIR-104/204.

External phone line

You may connect either a telephone handset or a fax machine to the AIR-204 (not the AIR-104) via the PHONE jack. Use an RJ-11 to RJ-11 cable (only one is supplied) to make the connection.

Chapter 3 Configuring PC's in the Network

Why do I need to configure PC's?

Any PC that is connected to the network (either plugged directly into the AIR-104/204 or uplinked from an external hub/switch) requires configuration before it can communicate with the AIR-104/204.

Each PC must have TCP/IP installed. Additionally, each PC must either be configured to obtain an IP address through a DHCP server, or must have its IP address set manually.

Only PC's configured in this manner can share Internet access by means of the AIR-104/204.

Note: Any TCP/IP capable workstation can be used to communicate with or through the AIR-104/204. Other types of workstations may or may not be compatible; please consult the manufacturer's documentation.

Note: It is strongly recommended that you configure each network PC to obtain its IP address automatically from a DHCP server. Only this configuration procedure is escribed below. If you wish to set network IP addresses manually, please consult more detailed TCP/IP documentation.

When do I need to configure PC's?

When you first install the AIR-104/204 in your network, you will need to configure a PC so that you can use it, in turn, to configure the AIR-104/204.

After the AIR-104/204 is properly configured, you will need to configure each PC that is connected to the network.

What do I need to configure PC's?

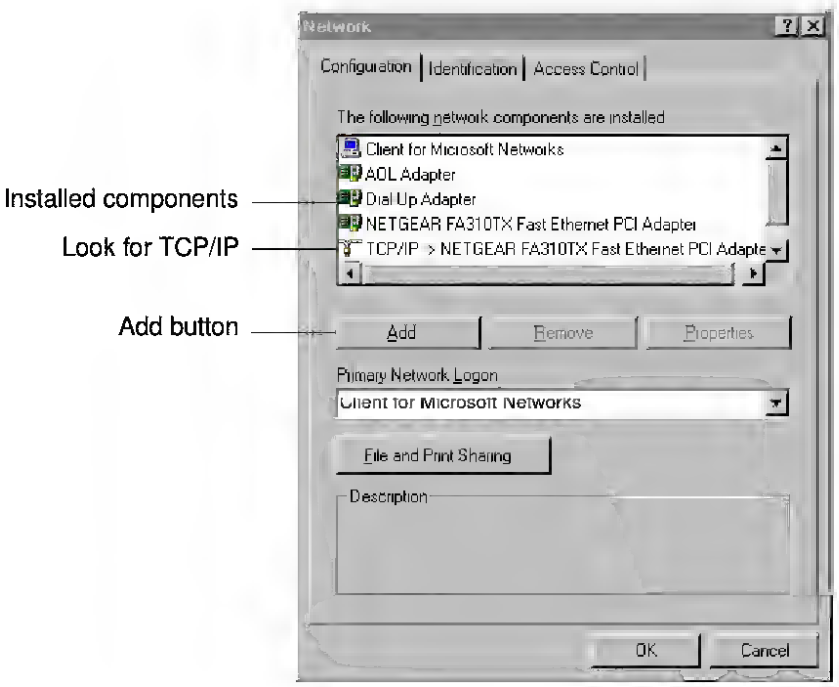
For configuration, a PC must have a properly-installed Ethernet or Fast Ethernet network interface, and that network interface must be connected properly to the network (either connected directly to a LAN port of the AIR-104/204, or uplinked via a properly-connected external hub or switch).

There are no operating system requirements for PC's to be configured. However, Windows 95 and Windows 98 are the most popular operating systems currently in use; the procedure described below applies for Windows 95/98. To configure PC's or terminals running other operating systems, consult the relevant user manual for information about installing TCP/IP.

How to configure network PC's

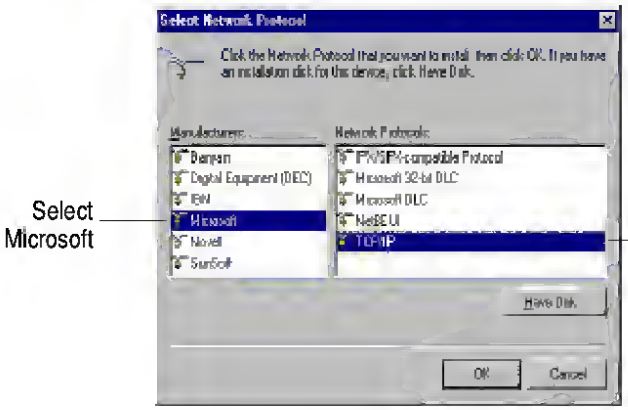
Step 1 Click on the Win95/98 Start Button, select *Settings*, and click on *Control Panel*. The Win95/98 Control Panel will appear.

Step 2 Double-click on the *Network* icon. The Network window will appear.



Step 3 In the Network window, click on the Configuration tab. Check the list of Network Components. If TCP/IP has already been installed, proceed to Step 7 (below). Otherwise, click on the *Add* button with the mouse. The Network Component Type window will appear.

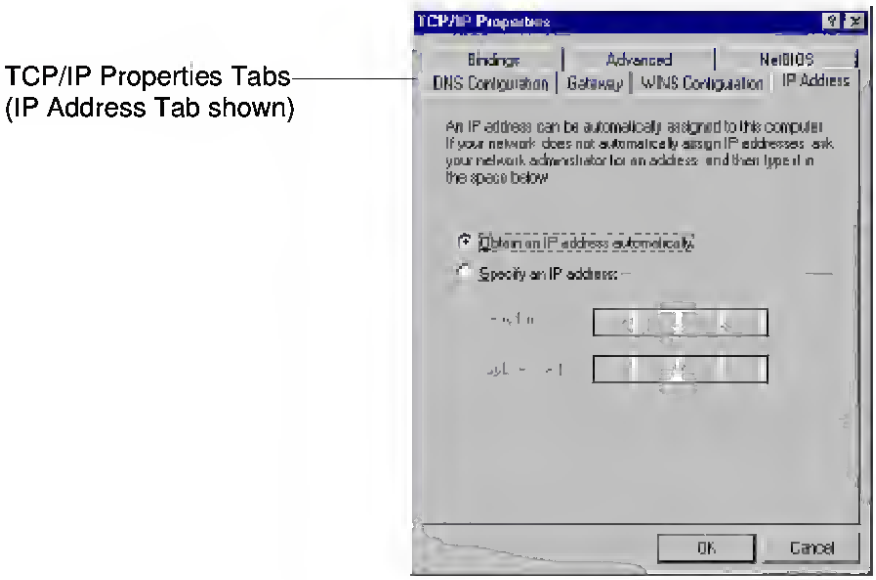
Step 4 In the Network Component Type window, click the *Protocol* button with the mouse. The Select Network Protocol window will appear.



Step 5 In the Select Network Protocol window, select *Microsoft* from the list of manufacturers by clicking it with the mouse. Select *TCP/IP* from the list of network manufacturers by clicking it with the mouse. Click on the *OK* button with the mouse to accept. The installation procedure for TCP/IP will begin. You may need to insert the Win95/98 system software CD to complete the installation.

Step 6 After TCP/IP installation is complete, go back to the *Network* window shown in Step 4.

Step 7 Select *TCP/IP* from the list of network components by clicking it with the mouse, and then click on the *Properties* button. The TCP/IP Properties window will appear.


TCP/IP Properties
Bindings
Advanced
NetBIOS
DNS Configuration
Gateway
WINS Configuration
IP Address
An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.
Obtain an IP address automatically
Specify an IP address:
OK
Cancel
TCP/IP Properties Tabs (IP Address Tab shown)

Step 8 Check each of the following settings under its indicated tab.

-Bindings Tab: both *Client for Microsoft Networks* and *File and printer sharing for Microsoft Networks* should be selected.
-Gateway Tab: All fields should be blank
-DNS Configuration Tab: *Disable DNS* should be selected
-IP Address Tab: *Obtain IP address automatically* should be selected

Note: If you do not disable DNS on every PC that is connected to the network, then the Windows operating system may emit DNS broadcast packets, which may in turn cause the AIR-104/204 to dial up your ISP even if there is no real Internet traffic.

Step 9 Make sure that both the PC and the AIR-104/204 are properly connected to the network, and then reboot the PC. The PC should now be prepared to communicate with the AIR-104/204.

Chapter 4 Basic Router Configuration

What is "basic configuration"?

Basic configuration of the AIR-104/204 encompasses the minimum procedure necessary for Internet access. If you are configuring the AIR-104/204 for the first time, following the procedures outlined in this chapter will allow you to begin accessing the Internet right away. Advanced configuration is covered in chapter 5.

What do I need to configure the AIR-104/204?

Network requirements

In order to configure the AIR-104/204, it must have been installed properly. See Chapter 2 for the procedure.

Requirements for configuration via web browser

To configure the AIR-104/204 remotely via web broswer, at least one properly-configured PC must be connected to the network. Additionally, that PC must be equipped with a web browser: Netscape 4.5 or newer, Internet Explorer 5.0 or newer, or another compatible web browser. Consult your browser documentation if you have any questions.

Internet access

Obtain an account from an Internet Service Provider

In order to configure the AIR-104/204 for Internet access, you will need previously to have arranged an account with an Internet Service Provider (ISP). Your ISP account must meet the following requirements:

Standard modem

- dial-up account for V.90 modem (or your external modem type), using standard PPP transmissions
- dynamically assigned IP address

ISDN

- dial-up account for an ISDN terminal adapter, using standard PPP transmissions
- dynamically assigned IP address

These requirements represent common basic standards; you should have no trouble communicating them to your ISP and arranging for suitable service.

Using two Internet service accounts

If you have connected two modems or ISDN terminal adapters to your AIR-104/204 for increased bandwidth, then you must also arrange a second ISP account that meets the same requirements listed above. Each modem or ISDN terminal adapter utilizes a separate ISP account when accessing the Internet, and you pay for each account separately. However, the "bandwidth on demand" feature of the AIR-104/204 allows you to minimize the costs of utilizing a double ISP account, and still to maximize bandwidth for Internet traffic. For more details, see the section entitled Advanced system configuration in Chapter 5.

How do I log onto the AIR-104/204?

The basic procedure for configuring the AIR-104/204 utilizes a web browser running on a network PC to access the Internet Configuration Console (ICC) controlled by firmware on the AIR-104/204. This section is an introduction to using the ICC. The following section (How to configure your Internet connection) provides step-by-step instructions for using the ICC to get everyone on your LAN connected to the Internet immediately. The ICC is specifically designed for user-friendliness; by following the procedures outlined in this chapter, you should be able to configure the AIR-104/204 for basic Internet access in less than five minutes. Alternatively, you may configure the AIR-104/204 by using the Command Line Interface (CLI). The CLI can be accessed remotely, via Telnet, or directly, via a console attached to the AIR-104/204. See Chapter 7 for full details about the Command Line Interface.

Accessing the AIR-104/204 via web browser

Connect a PC to the network as described in Chapter 2, and configure it as indicated in Chapter 3. Re-boot your PC and router, and open the Web browser on your PC. The top bar of the browser window frame contains a box that allows you to enter the URL address of the desired website (on Netscape, this box is labeled "Location"; on Internet Explorer, this box is labeled "Address"). In this box, enter the private IP address of the AIR-104/204, and then hit the Return key. By default, the private IP address of the AIR-104/204 is:

192.168.168.230

The AIR-104/204, as shipped from the factory, is set with this private IP address.

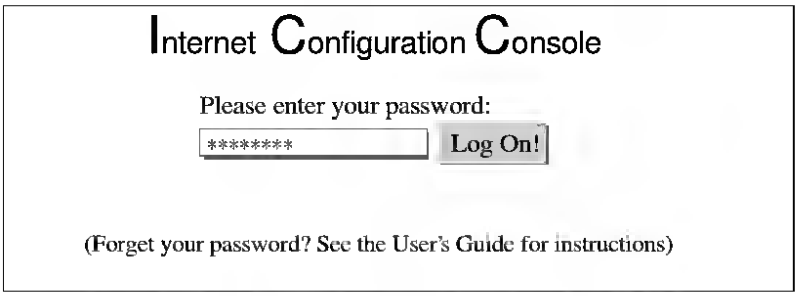
If you are configuring the AIR-104/204 for the first time, then enter the default ("192.168.168.230") into your web browser as the location or address.

If you have reconfigured the AIR-104/204 to another private IP address (see Chapter 5), then enter the AIR-104/204's current private IP address instead of the default.

If you have changed the IP address of the router and subsequently forgotten the new IP address, you can connect a PC directly into the console port of the AIR-104/204 and use the Command Line Interface to learn or reconfigure the router's IP address. See Chapter 7 for the procedure.

Logging on to the AIR-104/204

When you successfully access the AIR-104/204, a password prompt screen will appear on the web browser, requiring that you log on. The default password always appears in the password box, displayed as a string of asterisks ("*********").



By default, the password set in the AIR-104/204 is:

password

This password will always appear in the box, whether you have changed it or not.

If you are logging on for the first time, or if you haven't changed the default password, then simply click the Log On button to accept the default.

If you have changed the password to one of your own choosing, then enter the current password in the password box. Whatever you type, every character will be displayed as an asterisk ("*") for privacy.

If you have changed the password and then forgotten the new password, you must need to clear the entire configuration of the AIR-104/204 and return all values to factory default. See Chapter 6 for the procedure.

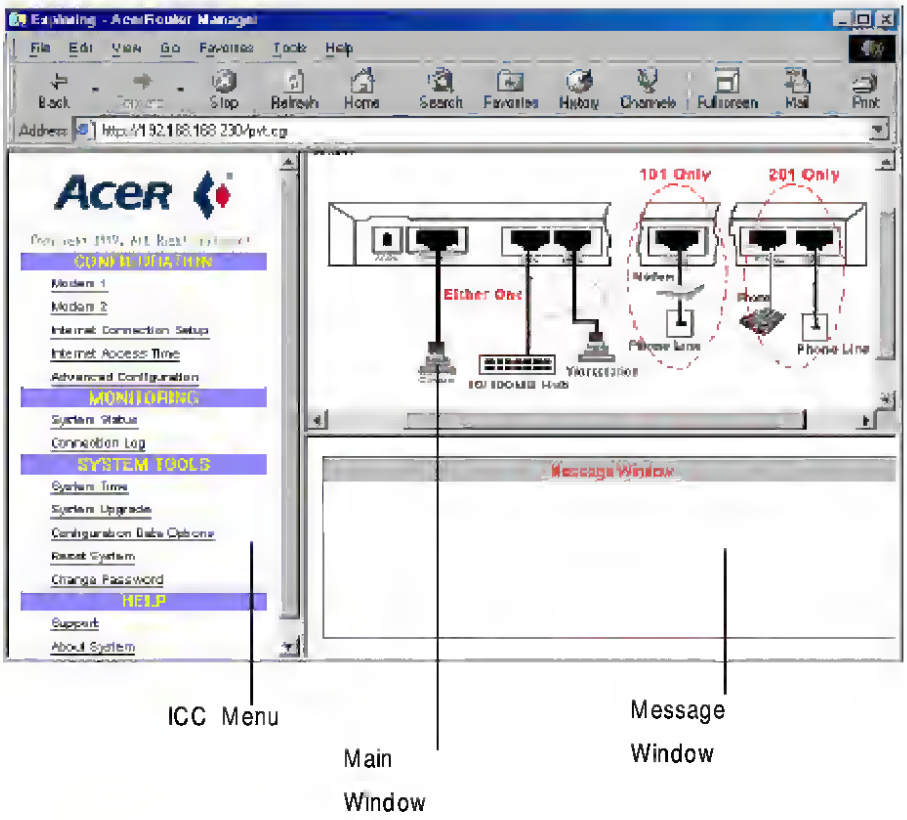
The Internet Configuration Console browser screen

After you have successfully entered the current password, the Internet Configuration Console (ICC) screen will appear on your web browser. The ICC browser screen contains all the utilities that you need to configure the AIR-104/204 for Internet access.

For added network security, a "time out" feature is built into the ICC browser screen - if the ICC lies inactive for 10 minutes, then you will need to log on again to use it.

The ICC browser screen is divided into three main areas:

- ICC Menu
- Configuration Window
- Message Window



ICC Menu

This area of the ICC browser screen contains a list of utilities you can use to configure and manage the AIR-104/204. The list of utilities is organized under four category headings: *Configuration*, *Monitoring*, *System Tools*, and *Help*. To make use of the menu, click on one of these utilities with the mouse (e.g., Internet Connection Setup under the *Configuration* heading). The selected utility will appear in the Main Window of the ICC browser screen.

If you are configuring the router for the first time after installation, please direct your attention to the *Configuration* heading on the ICC Menu. Here you will find all the utilities that you need to start accessing the Internet right away.

Main Window

This area of the ICC browser screen is the "workspace" of the Internet Configuration Console. When selected, the various utilities from the ICC Menu appear in this area so that you can interact with them.

When the ICC browser screen first appears, before any utility has been selected, the Main Window will display a schematic of the rear panel of the AIR-104/204, along with the devices that can be attached to each port.

Message Window

This area of the ICC browser screen is reserved for the display of important messages (such as error messages and progress messages) that provide feedback on the AIR-104/204's activities and status. For example, if you attempt to access the Internet but the

AIR-104/204 has not been configured with the correct password for your ISP account, the Message Window will display a message to inform you of this situation. A full explanation of these messages can be found in Appendix A.

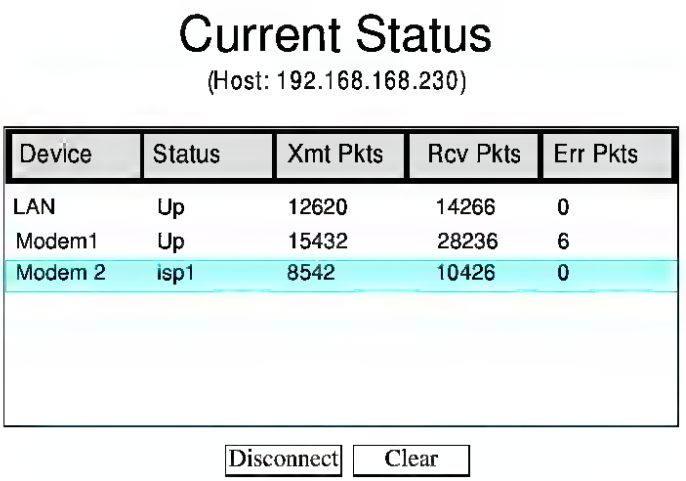
The System Status monitoring window

The System Status monitoring window is not integrated into the ICC browser screen. Rather, it appears as a separate, dedicated browser window that contains no utilities, so that you may monitor the status of the AIR-104/204 as you use it, even if you have already logged off from the ICC.

The System Status monitoring window appears automatically each time you successfully log on to the ICC. If you close the System Status monitoring window for any reason, you can re-open it by clicking System Status under the *Monitoring* heading in the ICC Menu.

Unlike the main ICC browser screen, the System Status monitoring window does not "time out"; it will continue to display the status of the AIR-104/204 until it is closed.

The System Status window displays a table, each of whose rows represents a status report for one of the AIR-104/204's interfaces. Each column of the table represents one category of the status report.



The System Status monitoring table

Device: indicates the nature of the interface whose status is being monitored; interfaces are LAN, Modem1, and Modem2. The four-port Ethernet hub built into the AIR-104/204 is reported as a single unit (LAN). Status reports for Modem1 or Modem2 will appear only if a modem or ISDN terminal adapter is connected to the COM1 or COM2 port, respectively (the V.90 modem built into the AIR-204 occupies the COM1 port, and so always is reported as Modem1).

Status. indicates the current state of the interface. The status of the LAN interface can be Up (indicating that the built-in hub is functional and connected) or Down. Normal status for the Modem1 and Modem2 interfaces should be either NoCall (the modem is not currently accessing the Internet) or isp1/isp2 (the modem is currently accessing the Internet, using the first or second ISP account, respectively). If you have disabled the Modem1 or Modem2 interface from the ICC menu (see How to configure your modem connection later in this chapter), that interface's status will be reported as disabled. If the Modem1 or Modem2 interface experiences an error, its status will be reported as error.

Xmt Pkts: indicates the number of packets that the interface has transmitted since it was

last cleared (see The Clear button below).

Rcv Pkts: indicates the total number of packets that the interface has received since it was last cleared (see The Clear button below).

Err Pkts: indicates the number ot tlawed packets that the intertace has received since it was last cleared (see The Clear button below).

The Disconnect button

The Disconnect button at the bottom of the System Status window provides a convenient shortcut for quickly disconnecting an active Internet connection on the Modem1 or Modem2 interface. Using the mouse, highlight Modem1 or Modem2 on the System Status monitoring table, and then use the mouse to click the Disconnect button. That interface's ISP connection will be taken down as soon as possible . Attempting to disconnect the LAN interface has no effect.

The Clear button

The Clear button at the bottom ot the System Status window lets you reset the accumulated packet statistics (Xmt Pkts, Rcv Pkts, and Err Pkts) to zero and begin a tresh count. Using the mouse, highlight the interface that you wish to reset, and then use the mouse to click the Clear button. The Xmt Pkts, Rcv Pkts, and Err Pkts columns should immediately reset to zero and begin accumulating a fresh set of statistics.

How to configure your modem connection

Before the AIR-104/204 can establish a connection with your Internet Service Provider (ISP), you may need to input some intormation about the modem(s) you have connected to it, so that the AIR-104/204 can communicate properly with the modem(s).

Additionally, you may contigure the AIR-104/204 to enable or disable either of the modem ports. You should disable those modem ports (external or internal) that are not connected to live phone lines, so that the AIR-104/204 will not keep attempting to set up Internet connections with them, thereby causing delays tor the users on your LAN as the AIR-104/204 continually attempts to make a call that can never go through. Disabling a modem causes the AIR-104/204 to ignore it, and instead try the call only on the remaining good line.

The simplest procedure for configuring the AIR-104/204 utilizes the Internet Contiguration Console (ICC), which is fully described above in the section entitled How do I log onto the AIR-104/204? System requirements for this procedure are detailed at the beginning of this chapter, in the section entitled What do I need to configure the AIR-104/204?

Alternatively, you may configure the AIR-104/204 by using the Command Line Interface (CLI). The CLI can be accessed remotely, via Telnet, or directly, via a console attached to the AIR-104/204. See Chapter 7 for full details about the Command Line Interface.

Using the ICC to configure the modem connection

The procedure for contiguring Modem1 and Modem2 is the same in both cases. You should input configuration information for any external modem connected to the AIR-104/204 , but there is no need to input this intormation tor the internal V.90 modem built into the COM1 port of the AIR-104/204 . However, you can still

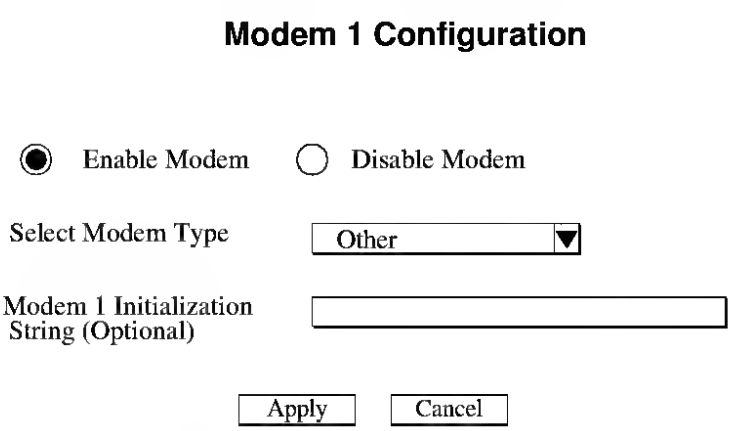
use this configuration procedure to enable or disable the built-in V.90 modem of the AIR-104/204 (by clicking on Modem1 under the *Configuration* heading of the ICC Menu). Follow the same procedure to enable or disable any external modem connected to the AIR-104/204 .

Step 1 From a properly-connected network PC, use your Web browser to log on to the ICC (see How do I interface with the AIR-104/204?)

Step 2 On the ICC Menu, locate the *Configuration* heading, and click on Modem1 or Modem2, depending on whether you wish to contigure the modem connected to the COM1 port or the COM2 port, respectively.

Note: The built-in V.90 modem of the AIR-104/204 occupies the COM1 port, which is configured by clicking Modem1 on the ICC Menu.

The following screen appears (Modem1 is chosen as an example).



Step 3 Enable or disable the selected modem by clicking on the appropriate area with the mouse.

Step 4 Select Modem Type: this item only appears it the port you have selected is connected to an external modem (not the built-in V.90 modem of the AIR-104/204). Click on the down arrow with the mouse. A drop-down list will appear; select the brand name ot your external modem, and then click it with the mouse to select it. It you cannot find your modem on the list, then select Other (the detault).

Step 5 Modem Initialization String: the contents ot this tield should appear automatically, according to the modem type you selected in the previous step. It the selected modem is the built-in V.90 modem ot the AIR-104/204, this field will remain blank; no input is required. You need to input a modem initialization string only if you selected Other tor Modem Type in the previous step. Enter standard Hayes set commands to be sent to the modem by the AIR-104/204 upon initialization. See your modem's user guide for more information.

Note: If modem initialization intormation is not available, then just leave this field blank. Most modem types will operate properly by default.

Step 6 Click the Apply button with the mouse.

How to configure your Internet connection

After you have configured the modem connection(s) of your AIR-104/204 , the last step required for Internet access is configure your Internet connection.

Unlike more complicated routers, the AIR-104/204 is specifically optimized for user-friendly Internet access. You may safely ignore the whole system of applying for and assigning IP addresses - the AIR-104/204 handles all these processes for you automatically.

To allow the AIR-104/204 to communicate with your Internet Service Provider (ISP) for Internet access, you just need to input your ISP's contact telephone number, your ISP account name, and your ISP account password. The AIR-104/204 will take care of everything else, and you can begin accessing the Internet right away.

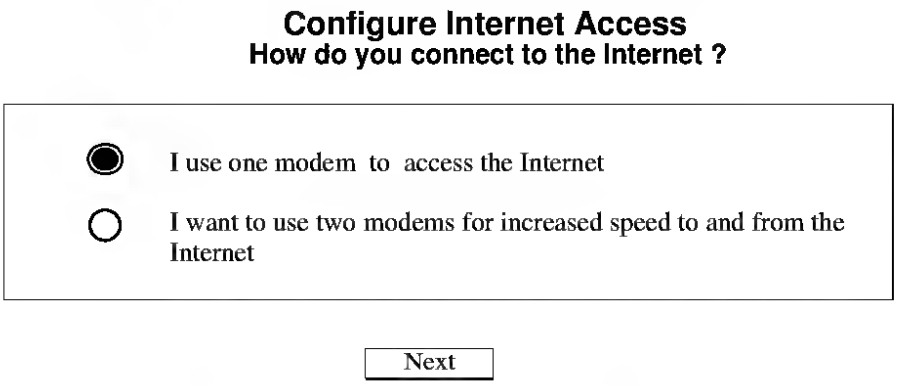
The simplest procedure for configuring the AIR-104/204 utilizes the Internet Configuration Console (ICC), which is fully described above in the section entitled How do I log onto the AIR-104/204? System requirements for this procedure are detailed at the beginning of this chapter, in the section entitled What do I need to configure the AIR-104/204?

Alternatively, you may configure the AIR-104/204 by using the Command Line Interface (CLI). The CLI can be accessed remotely, via Telnet, or directly, via a console attached to the AIR-104/204. See Chapter 7 for full details about the Command Line Interface.

Using the ICC to configure the Internet connection

Step 1 From a properly-configured and connected network PC, use your Web browser to log on to the ICC (see How do I log onto the AIR-104/204?)

Step 2 On the ICC Menu, locate the *Configuration* heading, and click on Internet Connection Setup. The Configure Internet Access screen will appear in the Configuration Window of the ICC browser screen.

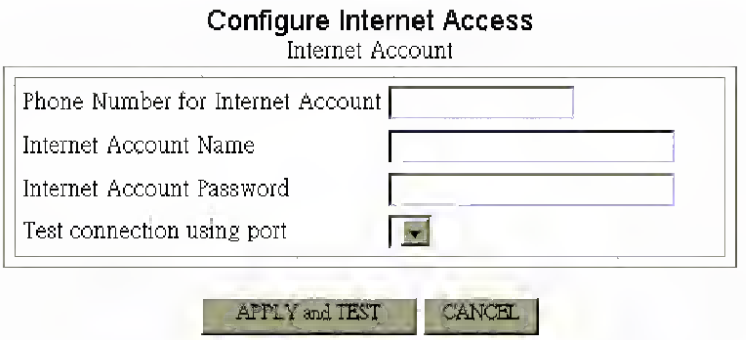

Configure Internet Access
How do you connect to the Internet ?
I use one modem to access the Internet
I want to use two modems for increased speed to and from the Internet
Next

If the AIR-104/204 is connected only to a single modem, or if dual modems are connected but you only wish to use one of them, then select "I use one modem to access the Internet". If the AIR-104/204 is connected to two modems and you wish to be able to use both of them, then select "I want to use two modems for increased speed to and from the Internet".

After you have made your selection, click on the Next button. Depending on your selection, proceed to consult either the Single-Modem Configuration section or the Dual-Modem Configuration section below.

Single-modem configuration

From the *Configuration* heading on the ICC Menu, you should have clicked Internet Connection Setup and then selected "I use one modem to access the Internet". The Internet Access Configuration screen appears in the Configuration Window of the ICC browser screen.



Step 1 Enter the following information:

Phone Number for Internet Account. the telephone number used to access your ISP account.

ISP Account Name. the username of your ISP account.

ISP Account Password: the password of your ISP account.

Step 2 On the line that reads Test Connection Using Port, click and drag to select the port number (COM1 or COM2) of the modem that you will use to access the Internet.

Step 3 Click on the APPLY and TEST button.

Note: When you click APPLY and TEST, the AIR-104/204 will immediately attempt to place a call to your Internet Service Provider, using the modem you have just identified. Watch the Message Window on the ICC browser screen for any messages. If the connection is opened successfully, your LAN users should re-boot their PCs, after which they may begin to access the Internet. If the connection is not successful, the Message Window will provide you with information about the nature of the problem.

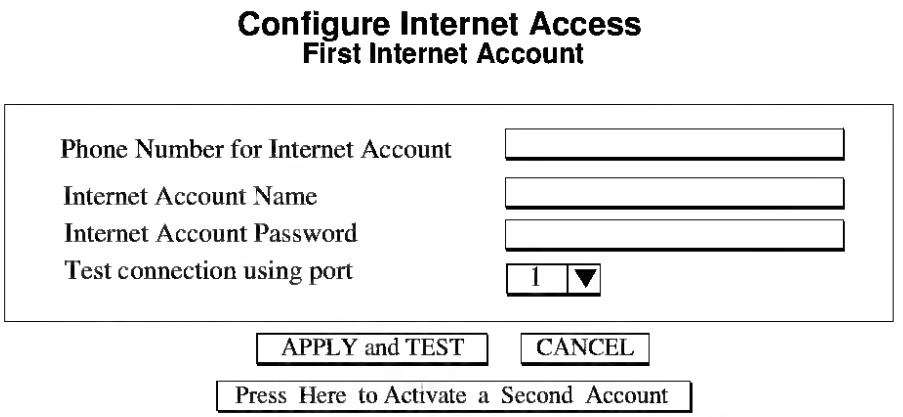
Dual-modem configuration

If you have connected modems to both the COM1 and COM2 ports of the AIR-104/204 (the built-in V.90 modem on the AIR-104/204 occupies the COM1 port) and you select

dual-modem configuration to maximize bandwidth, you will also need previously to have arranged two ISP accounts (see Internet Access under What do I need to configure the AIR-104/204? at the beginning of this chapter).

Dual-modem contiguration allows you to take advantage ot the "Bandwidth on Demand" teature ot the AIR-104/204. For more information about this feature, consult the section entitled Advanced System Configuration in Chapter 5.

From the *Configuration* heading on the ICC Menu, you should have clicked Internet Connection Setup and then selected "I want to use two modems for increased speed to and from the Internet". The Configure Internet Access screen tor the first Internet account appears in the Main Window ot the ICC browser screen.



Step 1 Enter the following information for the first Internet account:

Phone Number for Internet Account: the telephone number used to access this ISP account.

Internet Account Name: the username of this ISP account.

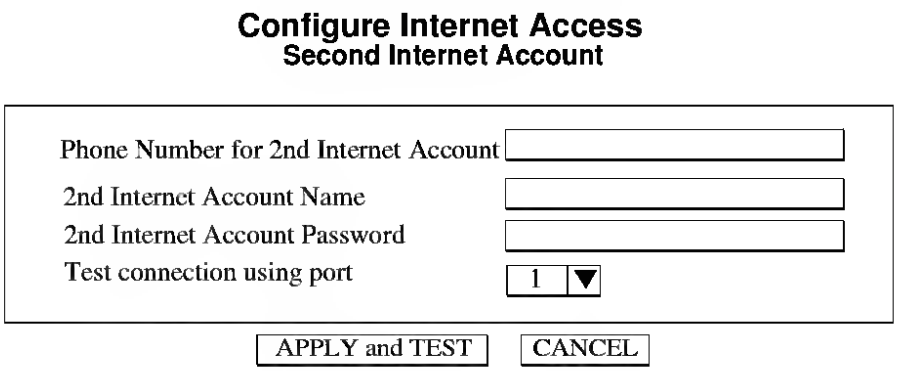
Internet Account Password: the password of this ISP account.

Step 2 On the line that reads Test Connection Using Port, click and drag to select the port number (COM1 or COM2) of the modem to which you intend to test this ISP account.

Step 3 Click on the APPLY and TEST button.

Note: When you click APPLY and TEST, the AIR-104/204 will immediately attempt to place a call to your Internet Service Provider, using the modem you have just identified. Watch the Message Window on the ICC browser screen for any messages. If the connection is opened successfully, your LAN users should re-boot their PCs, atter which they may begin to access the Internet. It the connection is not successful, the Message Window will provide you with information about the nature ot the problem.

Step 4 After Step 3 has been successtully completed, click on the button that reads Press Here to Activate a Second Account. The Configure Internet Access screen for the second Internet account appears in the Main Window ot the ICC browser screen.



Step 4 Enter the following information for the second Internet account:

Phone Number for 2nd Internet Account: the telephone number used to access this ISP account.

2nd Internet Account Name: the username of this ISP account.

2nd Internet Account Password: the password of this ISP account.

Step 5 On the line that reads Test Connection Using Port, click and drag to select the port number (COM1 or COM2) of the modem to which you intend to test this ISP account.

Step 6 Click APPLY and TEST.

Note: When you click APPLY and TEST, the AIR-104/204 will immediately attempt to place a call to your Internet Service Provider, using the modem you have just identified. Watch the Message Window on the ICC browser screen for any messages. If the connection is opened successfully, your LAN users should re-boot their PCs, after which they may begin to access the Internet. If the connection is not successful, the Message Window will provide you with information about the nature of the problem.

After successful configuration, what next?

After the ISP account(s) specified by your configuration has been opened successfully, all the users on your LAN may begin accessing the Internet immediately. However, each PC that wishes to communicate with the Internet must be configured to obtain an IP address from the AIR-104/204 automatically. The procedure to configure network PC's is described fully in Chapter 3.

Additionally, every time that the AIR-104/204 opens a new ISP connection, there is a possibility that the DNS information provided by the ISP may have changed (for more information, see the section entitled Advanced System Configuration in Chapter 5). If this occurs, users on the LAN may need to reboot their computers in order to access the Internet successfully.

Happy surfing!

Chapter 5 Advanced Router Configuration

What is "advanced configuration"?

Advanced configuration of the AIR-104/204 covers a range of options that allow you to fine-tune your Internet access and your network configuration. These options are listed as the section titles in this chapter.

None of the advanced configuration options is mandatory for basic Internet access. If you are configuring the AIR-104/204 for the first time, then you should begin with Chapter 4, which lists all the procedures necessary to get going immediately.

Knowledge of the procedures detailed in Chapter 4 (Basic Router Configuration) is assumed as a basic background for this chapter. Specifically, Chapter 4 gives instructions for using a network PC to log onto the Internet Configuration Console (ICC) utility contained in the AIR-104/204's firmware. Most of the procedures described in this chapter utilize this same procedure; if you have any questions about accessing the ICC, please refer to Chapter 4.

Viewing the Connection Log

To enhance network monitoring and cost control, the AIR-104/204 keeps a running record of its Internet access activity (the Connection Log). The Connection Log records the date and time of occurence for two different categories of events: *trigger* events and *connect / disconnect* events.

A *trigger* event is recorded every time that a network device's request to access the Internet causes the AIR-104/204 to attempt to open a new connection to your ISP. Reviewing *trigger* events allows you to identify which workstation (and, more specifically, which application) creates the demand for Internet access.

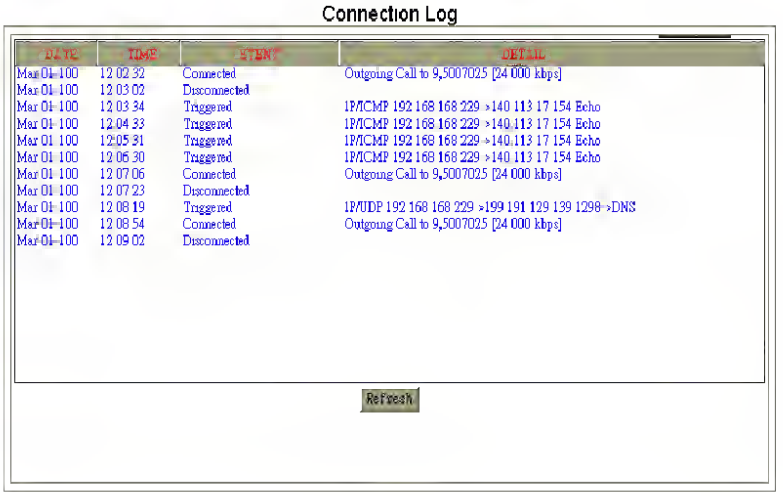
A *connect / disconnect* event is recorded every time that a connection between the AIR-104/204 and your ISP is established or taken down, respectively. Reviewing *connect* and *disconnect* events allows you to determine your telephone charges and Internet service charges.

The Connection Log is large enough to record up to 128 separate events. If the Connection Log fills up, the oldest entries are overwritten first, in favor of new entries.

To view the Connection Log

To view the Connection Log, find the *Monitoring* heading on the ICC Menu, and click Connection Log.

The Connection Log appears in the main window of the ICC browser screen.



Trigger events

In addition to the date and time of the event, the Detail column records the IP address of the network device triggering the connection, the IP address that the network device is attempting to contact, the TCP port of the application that is triggering the connection, and the protocol of the attempted transmission.

Connect events

In addition to the date and time of the event, the Detail column records the destination phone number and the connection rate.

Setting the time

The AIR-104/204 maintains a real-time clock, which is used to provide timestamps for entries in the Connection Log and the System Log. The AIR-104/204's internal clock also controls Internet access time restrictions. For more information about the Connection Log and Internet access time restrictions, see the relevant sections in this chapter; for more information about messages that may appear in the System Log, see Appendix A.

The AIR-104/204 does not contain a battery to back up its internal clock, so the time will not be maintained across a system reset or power-down. Therefore, in order to utilize properly any feature that requires the clock to be accurate, you will need to reset the AIR-104/204's clock to the correct date and time after a system reset or power-down. However, please note that when you set your local time zone and current Daylight Savings Time status, these indicators are stored in flash memory, therefore they do NOT need to be re-entered after a system reset or power-down.

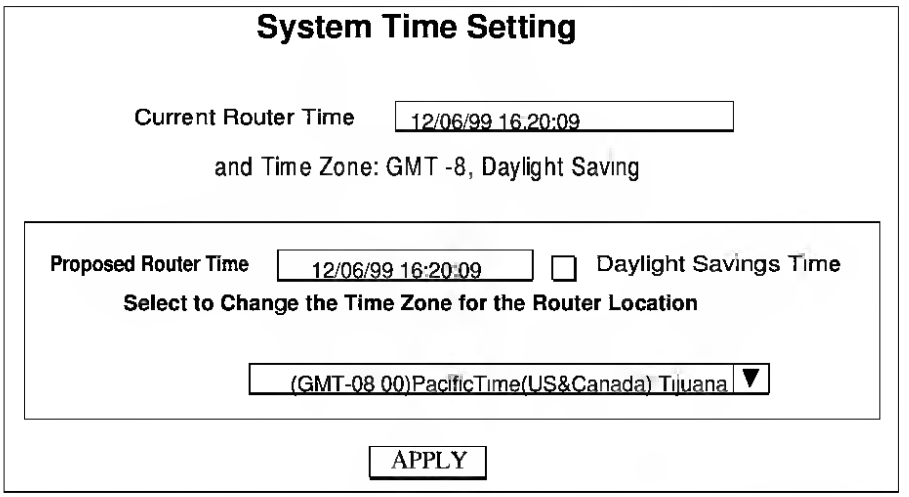
Note: Unsaved configuration items are automatically saved to non-volatile flash memory every 30 minutes. They can also be manually saved by the Save Configuration procedure described in Chapter 6.

For your convenience, and to ensure consistency, the AIR-104/204 is designed to automatically capture the date and time kept by your management PC whenever it logs onto the ICC. If you wish to reset the AIR-104/204's clock, you should first ensure that your management PC is set to the correct date and time, and then apply your management PC's time to the router. The procedure is outlined below. The same procedure allows you to modify your local time zone, as well as your current Daylight Savings Time status.

Alternatively, you can use the Command Line Interface to manually set the time in the router. See chapter 7 for details.

To adjust the time settings

Step 1 Log onto the ICC. Find the *System Tools* heading on the ICC Menu, and click on System Time. The System Time Setting window appears in the main window of the ICC browser screen. Current time settings within the router are displayed at the top of the window.



Step 2 The date and time captured from your management PC are displayed in the box labeled *Proposed Router Time*. Click the *Daylight Savings Time* box with the mouse to select and de-select this option.

Step 3 If necessary, click on the down arrow to the right of the *Time Zone* box, and the drop-down list of time zones appears. Find the appropriate time zone for your location, and click it with the mouse to select your choice.

Note: Your settings for *Daylight Savings Time* status and *Time Zone* will be stored in the AIR-104/204's flash memory (see previous note). It is not necessary to reset them every time the AIR-104/204 powers down or resets.

Step 4 Click the Apply button with the mouse. The AIR-104/204's clock time will be changed to reflect your adjustments and displayed immediately at the top of the System Time Setting window.

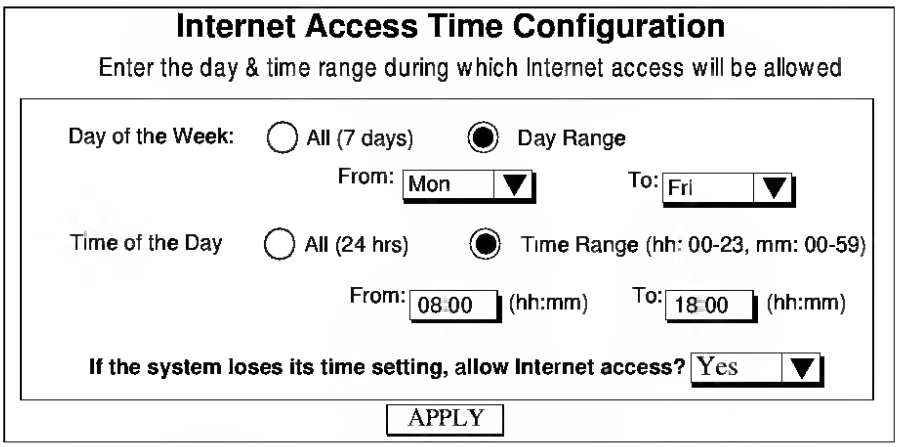
Setting Internet access time restrictions

To enhance security, efficiency, and cost control, you can configure the AIR-104/204 to disallow Internet access except on certain days, at certain times.

In order for this feature to be effective, the AIR-104/204's internal clock must already have been set to the correct date and time. See Setting the Time (above) for full details. When the AIR-104/204 has undergone a system reset or a power-down, at first the date and time will be unset. If you have configured the AIR-104/204 to restrict Internet access to certain days and times, it will not be able to comply with these restrictions until you set the correct date and time. Therefore, the AIR-104/204 can be configured to respond to this circumstance either by freely allowing Internet access, or by disallowing all Internet access until the clock is set. Once you have set the correct date and time from a management PC, the AIR-104/204 will once again begin complying with the underlying Internet access time restrictions stored in memory.

To set Internet access time restrictions

Step 1 Log onto the ICC. Find the *Configuration* heading on the ICC Menu, and click on Internet Access Time. The Internet Access Time Configuration window appears in the main window of the ICC browser screen. Current settings (stored in memory) are displayed



Step 2 Specify which days of the week Internet access should be allowed. Set the days of the week during which Internet access is allowed. You may specify a Day Range by clicking on the appropriate drop-down lists, or click on All to allow Internet access every day.

Step 3 Specify which times Internet access should be allowed. Specify a Time Range by clicking on the appropriate boxes and typing in the times that you wish Internet access privileges to begin and end (Please note that this setting is based upon a 24 hour clock). Select All to allow Internet access from midnight to midnight on the days you selected in Step 2.

Select a default status for Internet access privilege when the AIR-104/204 cannot comply with your desired Internet access time restrictions (i.e. after the router has been reset or powered down). If you select "Yes" (the default), then Internet access will be allowed until

the clock is set. If you select "No", then Internet access will not be allowed until the clock is set.

Step 4 Click on the Apply button with the mouse when you are finished.

Advanced System Configuration

The Advanced System Configuration utility allows you to fine-tune the AIR-104/204's handling of shared Internet access.

The most basic function provided by this utility is to set the Idle Timeout, i.e. how long the primary ISP connection from the COM1 port (or the built-in V.90 modem of the AIR-204) should be allowed to remain idle before the AIR-104/204 disconnects it.

The Multiple Account Usage area lets you enable or disable the "bandwidth on demand" feature, which causes a second Internet Account to be established or terminated automatically in response to changing demand for Internet access.

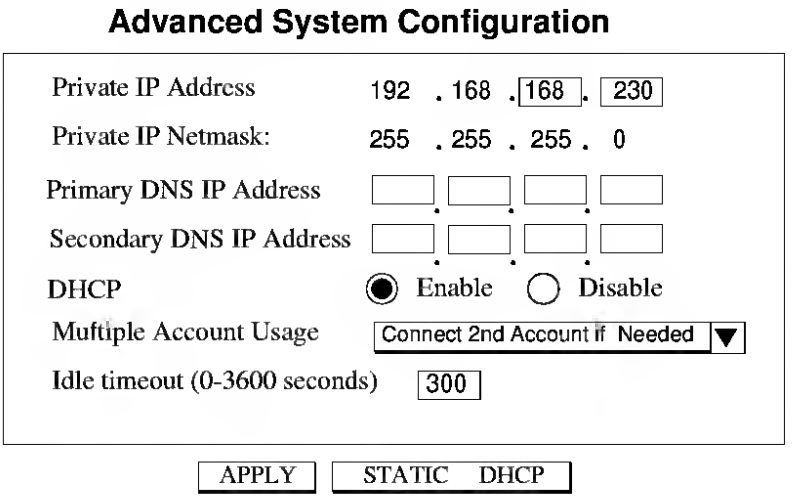
You may also modify the AIR-104/204's Private IP Address, if you wish, to assign it to a different IP subnet, or to avoid any conflict caused by two network devices sharing the same private IP address. If you change the router's IP subnet (the third section of the four-part IP address) from the default value of 168, then all new DHCP assignments will use this new subnet value.

You may specify Primary and Secondary DNS IP Addresses to be used for Internet access. Normally, the AIR-104/204 will acquire from your ISP the IP addresses of primary and secondary Domain Name Servers (DNS) that translate website or other Internet names into IP addresses. You may instead configure the AIR-104/204 to assign others of your own choosing.

Finally, you may enable DHCP, causing your AIR-104/204 to provide IP addresses to your network PC's, or disable DHCP if you wish to set IP addresses mamually (DHCP is enabled by default). Also, you may select Static DHCP for any of your network PC's, which causes that PC always to receive the same IP address (this may be necessary for certain network applications). The AIR-104/204 supports up to 20 such static DHCP assignments.

To set advanced configuration options

Step 1 Log onto the ICC. Find the *Configuration* heading on the ICC Menu, and click on Advanced Configuration. The Advanced System Configuration window appears in the main window of the ICC browser screen. Current settings are displayed.



Step 2 Enter the following information:

Private IP Address: the private IP address for the AIR-104/204's LAN interface. The default private IP address is:

192.168.168.230

Note: Once you change the private IP address (e.g., from the default of 192.168.168.230 to 192.168.167 230), network PC's will no longer be able to communicate with your AIR-104/204 - specifically, the management PC that just changed the IP address will no longer be able to communicate with the AIR-104/204. To reconnect, you need to re-boot your computer. Similarly, all other devices on the LAN need to be restarted before they can access the Internet again.

Private IP Netmask the network mask for your LAN. Its value is 255.255.255.0 and cannot be changed.

Primary DNS IP Address: the IP address of the primary Domain Name Server (DNS). By default, the IP address of the primary DNS server acquired from your ISP will appear here. Here you may change that IP address to another, if you wish.

Secondary DNS IP Address: the IP address of the secondary Domain Name Server. By default, the IP address of the primary DNS server acquired from your ISP will appear here. Here you may change that IP address to another, if you wish.

DHCP: select enable (the default) or disable the Dynamic Host Configuration Protocol (DHCP). When enabled, the AIR-104/204 will act as a DHCP server, providing an IP address, network mask, gateway address (the AIR-104/204's private IP address), and DNS addresses to any requesting network device that is configured as a DHCP client.

Multiple Account Usage: If you have configured two Internet accounts, here you may control the "bandwidth on demand" feature. If you select "Connect 2nd Account Only if Needed" (the default), then the "bandwidth on demand" feature will be enabled, and the AIR-104/204 will only establish a second connection if Internet traffic increases above an upper threshold. Once the traffic decreases below a lower threshold, the second connection will be taken down. If you select "Always Use Two Accounts", then both connections from COM1 and COM2 will always be opened and closed together. Please note that this latter choice may result in increased phone and ISP charges.

Idle Timeout: Set the number of seconds that the modem connection is allowed to remain idle before the AIR-104/204 will disconnect from the ISP. The idle timeout may set from 0 to 3600 seconds (the default setting is 300). If you select 0, the connection will never time out.

Step 3 When you are finished, click the Apply button.

Step 4 If you want to configure static DHCP assignments, click the STATIC DHCP button and continue on to the next section.

Static DHCP Assignments

You will need to create an entry on the DHCP Static Assignment Table for each PC that is to be assigned a static IP address.

Step 1 Log onto the ICC. Find the *Configuration* heading on the ICC Menu, and click on Advanced Configuration. The Advanced System Configuration window appears in the main window of the ICC browser screen. Current settings are displayed.

Step 2 At the bottom of the Advanced System Configuration screen, click on the STATIC DHCP button. The Static Assignment Table appears in the main window of the ICC browser screen.

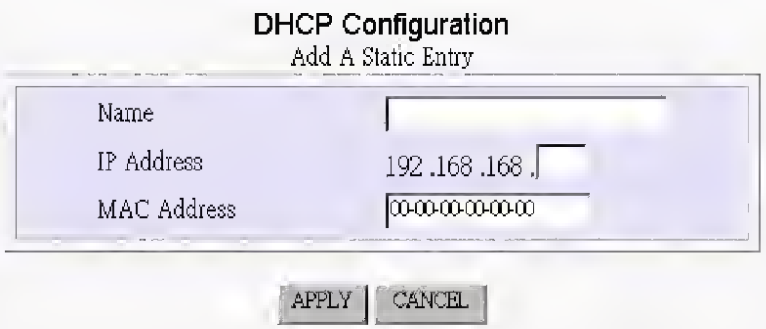
DHCP Configuration

Static Assignment Table

Name	IP Address	MAC Address
Bing	192.168.168.95	00-aa-00-62-c6-09

Add Edit Delete

Step 3 To add an entry to the DHCP Static Assignment Table, click on the Add button at the bottom of the table. The Add a Static Entry screen appears in the main window of the ICC browser screen.



Step 4 Enter the following information to create a static DHCP entry:

Name: Enter a name for your reference.

IP Address: The IP address to be consistently assigned to this device.

MAC Address: The hardware address associated with the Ethernet adapter of the network device. Please note that dashes must separate each pair of hexadecimal digits.

Step 5 When you are finished, click on the Apply button. The DHCP Static Assignment Table will appear again in the main window of the ICC browser screen.

Step 6 Repeat steps 3-5 to assign further static DHCP entries. You may also select an existing static DHCP entry by clicking it with the mouse; then click on the Edit button to edit the selected entry, or click on Delete to delete it.

Chapter 6 Management

What is "management"?

The management functions ot the AIR-104/204 provide you with convenient tools necessary to update the AIR-104/204 over the long term. This chapter covers the tollowing common tasks:

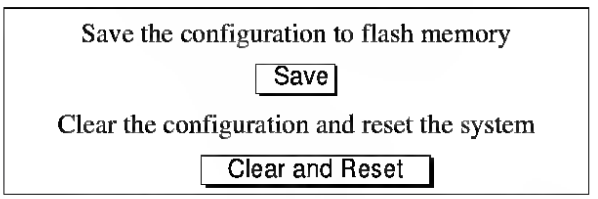
- How to save or clear configuration changes
- How to restart the AIR-104/204
- How to change my ICC password
- What it I forget the ICC password?
- How to upgrade the AIR-104/204's software

How to save or clear configuration changes

While fine-tuning your Internet access, you may need to make temporary adjustments to the AIR-104/204; theretore, the configurations you enter will NOT be saved to flash memory instantly. Instead, the AIR-104/204 is designed to save to flash memory any unsaved configuration changes, every thirty minutes, automatically. For closer management, you can use the Configuration Options to save changes manually, or to clear the contiguration completely.

Step 1 Log onto the ICC. Find the *System Tools* heading on the ICC Menu, and click on Contiguration Data Options. The Configuration Data Options screen appears in the main window of the ICC browser screen.

Configuration Data Options

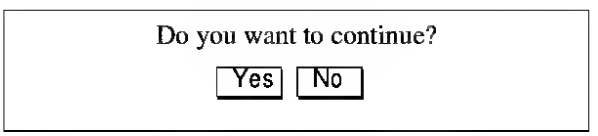


Step 2 Click Save to save the current contiguration database to flash memory, or click Clear and Reset to erase your entire configuration database (in tavor of tactory detaults) and reset the system.

Step 3 When you click Clear and Reset, you will be asked to contirm your decision.

Click Yes to clear the contiguration and reset the system, or click No to cancel.

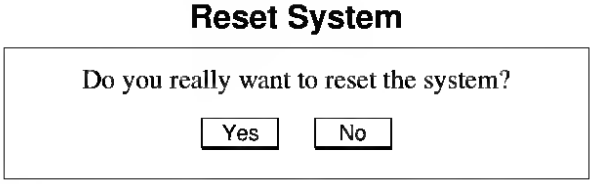
Configuration Options



How to restart the AIR-104/204

Besides toggling the power switch on the back panel of the AIR-104/204, you can also restart the system from the ICC Menu.

Step 1 Log onto the ICC. Find the *System Tools* heading on the ICC Menu, and click on Reset System. The Reset System screen appears in the main window of the ICC browser screen.



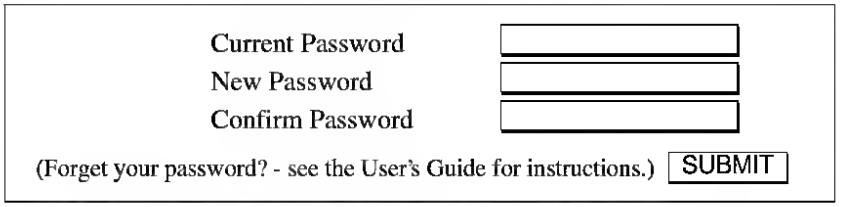
Step 2 Click Yes to reset the system, or click No to cancel.

Note: Resetting the AcerRouter disconnects any active calls, and may disrupt current user operations. You may also lose recent configuration changes (those that have been made within the last 30 minutes), unless they have been saved manually (see the relevant section above for the procedure).

How to change the ICC password

For added security, you should frequently change the ICC password saved in the AIR-104/204. In particular, once you have successfully installed and configured the AIR-104/204 for the first time, you should change the factory default ICC password to one of your own choosing.

Step 1 Log onto the ICC. Find the *System Tools* heading on the ICC Menu, and click on Change Password. The Password Configuration screen appears in the main window of the ICC browser screen.



Step 2 Enter the following information:

Current Password: the password that you just used to log onto the ICC.
New Password: the new ICC password that you wish to implement
Confirm Password: enter the new ICC again, to avoid any error.

Note: If you are changing the password for the first time, the Current Password is the factory default: "password".

Step3 When you are tinished, click Submit.

What if I forget the ICC password?

For your security, a password is REQUIRED to log onto the AIR-104/204. If you forget the ICC password, the only way to recover is to clear the entire configuration manually and return the unit to its original state as shipped trom the tactory. Unfortunately, this will also result in the loss of your entire contiguration database; all settings will need to be re-entered. To clear the configuration manually and restore the password to the default, tollow these steps:

Step 1 Connect a PC to the CONSOLE port ot the AIR-104/204. The procedure is outlined in Chapter 2.

Step 2 Run the terminal emulation software (e.g. HyperTerminal) on the console PC. See Chapter 7 tor details on the proper settings for the terminal software.

Step 3 Toggle the power switch on the rear panel of the AIR-104/204 to off, and then toggle it back it on again. In the console PC's terminal window, the message "Loading firmware..." will be displayed.

Step 4 When the "Ready" message is displayed in the console PC's terminal window, immediately (within one second) press Control-C on the console PC's keyboard.

Step 5 The AIR-104/204 will undergo a system reset. After the system reset has been completed, all settings stored in the AIR-104/204 will return to the tactory detaults. In particular, the ICC password once again will become "password".

Note: Keep in mind that anyone can perform this procedure and seriously compromise security in your network. Make sure physical access to the AIR-104/204 is consistent with your security requirements.

How to upgrade the AIR-104/204 software

Periodically, you may need to upgrade the AIR-104/204's firmware (*firmware* is the software that controls the AIR-104/204's operations). Normally, this is done when you discover a problem that is resolved in a newer version ot the tirmware, or when Acer produces an updated version ot the tirmware which includes new features that you need. Otherwise, if you are happy with your current situation, you may not want to upgrade even if a new version is available. Please check the Acer Netxus website for information about the latest firmware upgrades (the software can be downloaded directly trom the website):

www.acernetxus.com.tw

The upgrade procedure tollows:

Step 1 Using a web browser, connect to the Internet and acess the Acer Netxus website at:

www.acernetxus.com.tw

Following the directions on the website, download the desired version of the sottware and install it in your local PC environment.

Step 2 Log onto the ICC. Find the *System Tools* heading on the ICC Menu, and click on System Upgrade. The System Upgrade screen appears in the main window ot the ICC browser screen.

Step 3 Enter the path or filename where you installed the software in Step 1 above (e.g., a200v101.sig), or click Browse to select a path to the software. When ready, click the Upgrade button, and follow the onscreen instructions. The new firmware will begin loading across the network. After the operation is complete, be sure to reset the AIR-104/204, and the new firmware will take effect.

Chapter 7 The Command Line Interface

What is the Command Line Interface?

Although the AIR-104/204 is most conveniently configured and managed via the Internet Configuration Console (described in Chapter 4), it is also possible to interface with the router using the Command Line Interface (CLI). In fact, certain feature of the AIR-104/204 are ONLY accessible by means of the CLI. The CLI is a text-based user interface, unlike the graphic intertace of the ICC, and it MUST be used to control the AIR-104/204 from a directly-connected console PC.

Using the Command Line Interface

There are two ways to access the AIR-104/204's CLI:

- Telnet
- console (direct PC connection running terminal emulation software)

Connecting to the CLI via Telnet

The AIR-104/204 can be accessed via Telnet from any PC that is connected to the network. You may use any telnet program that complies with the standard TCP/IP protocols; the most simple procedure is to click on the Windows 95/98 Start button, click Run, and type in "telnet" followed by the IP address when the Run window appears (please recall that the AIR-104/204's detault IP address is 192.168.168 230).

Connecting to the CLI through the console port

Another way to invoke the command line interface is to connect a PC running terminal emulation software directly into the CONSOLE port on the AIR-104/204. A null modem cable is supplied to make this connection; see Chapter 2 for more details on the installation procedure.

Your console PC will require terminal emulation software, such as the Hyperterminal program that comes bundled with Windows 95/98. The instructions given here are for Hyperterminal; for any other software, consult the user's guide on the best way to enter the same parameters.

Step 1 Run the Hyperterminal program: click on the Windows 95/98 Start Button, select Programs, then Accessories, then Hyperterminal, and tinally click on the version ot Hyperterminal that you wish to use. The Hyperterminal window appears.

Step 2 On the Hyperterminal tool bar, click on File, and then select Properties from the menu that appears. The Connection Properties window appears.

Step 3 On the Connection Properties window, click on the Settings tab. Find the Emulation bar, and click on the down arrow for its drop-down menu. Set Emulation to VT-100.

Step 4 On the Connection Properties window, click on the Connect To tab. Click on the Contigure button. The COM1/2 Properties window appears.

Step 5 On the COM1/2 Properties window, tor the Port Settings enter the following values:

Bits per second (baud) 19200
Data bits: 8
Parity: None
Stop Bits: 1
Flow Control: Hardware

Note: If your terminal emulation software does not allow you to set flow control options, then you should set the flow control manually. Click the Win95/98 Start button, select Settings, and click on the Control Panel. The Control Panel window appears; click on the System icon. Select Device Manager, and then COM Ports. Choose either COM1 or COM2, depending on which port you are using to connect to the AIR-104/204. Under Settings, you will till tind Flow Control; set it to Hardware.

Note that after configuring these settings, some programs require you to close the application and then re-open it.

Step 6 Enter a carriage return to start your session.

General guidelines

When logging on to the AIR-104/204, the user will see a system sign-on message, followed by a password prompt:

Acer Router Manager Console Version: rev_no build_date_time
Please enter your password: ********

As outlined in Chapter 4, the default password is "password". If you are logging onto the system for the tirst time, key in the default password; you may change the password later to one ot your own choosing. At all times, the password tor the CLI is identical to the password tor the ICC; if you change one, then you will also change the other at the same time. Please note that the password is case-sensitive. As you type in the password, your keystrokes will be echoed as asterisks (*). When you hit the Carriage Return, the password you have entered will be tested against the current password. If the password string is validated, the command prompt will be displayed:

Command>

The user may now begin to issue commands. Most of the commands are single-line commands, and no commands are context-sensitive: each command is independent ot other commands betore or after it.

While entering commands with the CLI, please make a note ot the following general guidelines:

- At any time, the user may type a " ?" (preceded by a space) to request tor help concerning what the user can enter next. If the CLI is expecting a keyword when the user types "?", then all valid keywords will be displayed tor selection, and the unfinished command will be re-displayed withe cursor at the end tor the user to finish the input.
- Instead of entering a tull keyword, the user may simply enter the tirst part of the keyword and then hit tab or space; the system will automatically complete the keyword, unless the characters entered thus far do not uniquely identity a keyword, in which case nothing will happen. If the user is unsure how to complete the keyword, she may simply type as many characters as she knows, followed by a "?"; the system will then display all valid keywords which match the partial input.
- At any time, the user can type control-p (^p, by pressing both the Ctrl key and the ^p key at the same time) to repeat the previous command, or control-n to return to

the next command in the sequence. At startup, typing ^p or ^n will not cause anything to happen, since no sequence ot commands exists yet. In normal operation, typing ^p will cause the previous command to show, and the cursor will sit at the end of the command. At this point, the user can either type a carriage return to accept the command, or type backspaces to edit the command trom the end, or ^p to display the nextmost previous command in the sequence, or ^n display the command that comes after it in the sequence (if applicable). The CLI stores a total ot up to 15 previously-entered commands in a sequence that can be invoked through ^p's and ^n's.

Conventions

The following notations will be used:

- lan means the LAN port;
- <> specifies the arguments of the command, <1-4> means a number between 1 to 4;
- [ ] indicates a required or optional parameter, or choice ot parameters; Interface Name or ifName represents a profile interface, which can be the LAN port (lan), or a modem profile
- Profile Name means an Internet profile, not the LAN port.
- xxx/yyy means xxx, or yyy;
- num means any integer number (such as 19200, 9600, ...);
- MacAddr, or nn-nn-nn-nn-nn-nn means any MAC address in hexadecimal format, where each nn can be 00, 01, .. 09, 0A, 0B, 0C, 0D, 0E, 0F, 10, 11,... FF;
- ipAddr, netMask, or xxx.xxx.xxx.xxx means any ip address or network mask, where xxx is a decimal integer between 0 and 255
- the term string means a string ot characters up to the specified length, which may be enclosed in double quotes (") (required if the string contains embedded blanks

Command Categories

From a functional point ot view, commands can be grouped into the following functional categories:

(1) Diagnostics	(2) IP	(3) Port
(4) Profile	(5) Security	(6) Statistics
(7) System		

This list may vary depending upon the model of AIR-104/204 and the installed features.

For convenience, the section Command List summarizes all commands using the following categories:

- DHCP
- Diagnostics
- IP
- Port Commands
- Profile Commands
- Security
- Statistics
- System

Command List

DHCP Commands

The Dynamic Host Control Protocol (DHCP) is a client/server protocol[1] that defines an efficient and convenient means ot dynamically assigning IP addresses and other networking parameters tor a period of time upon request. In an AIR-104/204 environment, this means either the dynamic assignment ot private IP addresses to PCs co-residing on the LAN segment with the AIR-104/204, or a static assignment of these addresses according to the station identification (the MAC address) ot the requesting client.

Since the SOHO Router is configured with a private IPaddress tor its LAN connection, the DHCP server is automatically enabled. (The DHCP function is disabled if the router discovers another DHCP server at initialization time, or if the user has explicitly disabled this function.) DHCP clients residing in LAN-resident machines, such as those running Windows 95/98, may then request a lease on an IP address from a DHCP server. As the term implies, the assignment of the address is temporary. The default lease period in a AIR-104/204 DHCP server is ten hours. The DHCP client is responsible tor the renewal of the lease.

Both static and dynamic DHCP assignments are supported. The range ot IP addresses in the dynamic pool from which the server selects an address to satisfy a request is fixed and extends trom 192.168.168.1 to 192.168.168.229, with the highest available address being assigned tirst. Statically assigned addresses must be within this range as well[2]. Up to 20 static DHCP assignments may be contigured and saved.

disable dhcp

Description: This command disables the Dynamic Host Control Protocol server functions within the router. The router will no longer respond to lease requests. Existing leaseholders will not be able to renew their leases after the lease term expires, unless another DHCP server resides within the network.

enable dhcp

Description: This command enables the Dynamic Host Control Protocol server tunctionality within the router. When enabled, the router will service a client request for IP address and net mask assignment, as well as assignments of detault gateway, and DNS server addresses. The pool ot addresses trom which the router selects is between 192.168.xxx.1 and 192.168.xxx.229, inclusive. The default value of xxx is 168, unless re-contigured with the set ip private... command (or its HTTP equivalent). The term ot the lease is 10 hours. The factory default is enabled.

---

1. The Internet Engineering Task Force (IETF) defines DHCP in RFC-2131 and RFC-2132.
2. In certain cases, statically assigned addresses may be above this address. Some AIR-104/204 models may not require this entire range and theretore, static DHCP assignments from this range may be used.

show dhcp

Description: This command displays the current status of the Dynamic Host Control Protocol server.

Example:

```
Command> show dhcp
Admin Status:       Enable          Default Lease:    10 hours
Network address:    192.168.188.0   Netmask:          255.255.255.0
Default gateway:    192.168.188.207
Primary DNS:        199.191.129.139 Secondary DNS:    199.191.144.75

IP-Address      Mac-Addr       Lease-Expires     Entry Type
-----------------------------------------------------------------------------
192.168.167.134 00400535db4f   06-15-99 14:24:5  Static
192.168.167.229 222222222222   06-15-99 16:43:7  Dynamic
```

show dhcp table

Description: This command displays the entries currently configured in the Static DHCP Assignment Table.

Example:

```
Command> show dhcp table
Static Dhcp Assignments
Name            IP-Address      Mac-Address
-----------------------------------------------------------------------------
daniel          192.168.168.134 00-40-05-35-DB-4F
```

Diagnostic Commands

connect profile isp 1

connect profile isp 2

Description: For Internet profiles, this command activates the specified profile as if a trigger occurred.

disconnect profile isp 1

disconnect profile isp 2

Description: For active Internet connections, this command terminates the connection as if an idle timeout occurred.

enable/disable trace

Description: This command enables or disables the debug trace messages. When enabled, all log messages entered into the system log will appear in the console session from which this command is issued.

ping ipaddr [<n_times> < n_size>]

Description: This command allows the user to ping an IP device (send a diagnostic message to be echoed by the receiving device). If n_times and n_size are optionally specified, the ping will be performed n_times times, and each time with size equal to n_size. Otherwise, ping will only be executed once with the packet size equal to 56 bytes. The maximum value of n_times is 100: any value larger than this will be set to 100. The maximum value ot n_size is 1932: any value larger than this will be set to 1932.

Example:

```
Command> ping  10.0.0.2 100 1000
repeating times = 100,  data length = 1000
Ping packets -- total: 100  sent: 100  received: 100
Command> ping  10.0.0.2
repeating times = 1,  data length = 56
Ping packets -- total: 1  sent: 1  received: 1
```

set log level <1-10>

Description: For a description of this command, see set log level <1-10> under System Commands.

test modem <port #> <telephone number>

Description: This command causes a modem call to the specified telephone number. The call is cleared immediately after a connection is established.

IP Commands

ping ipaddr [<n_times> < n_size>]

Description: See description under Diagnostics.

set ip private <ip_addr> <netmask>

Description: This command is used to modify the private address on the AIR-104/204's LAN interface.

The IP network corresponding to the set ip private command becomes the private network. Private addresses are not legal for use on the Internet and therefore, devices in this network are no longer accessible from public devices on the Internet side. All devices within this private network are represented by one single IP address: the IP address received from an Internet Service Provider at connect time. Note that 192.168.168.230 is the default private address used for the AIR-104/204, and the private network address is 192.168.168.0, and therefore all private devices should have IP addresses within the range ot 192.168.168.1 to 192.168.168.254. Private IP addresses may be any Class C address with the range 192.168.xxx.0, where xxx is between 0 and 255.

Example:

```
Command> set ip  private 192.168.168.168 255.255.255.0
```

show arp table

Example:

```
Command> show arp table
110.0.0.1 at 00:60:20:00:00.15 permanent
110.0.0.2 at 00:40:33:3D:D5:DB
```

Description: This command displays the ARP (Address Resolution Protocol) cache table, which contains up to 16 most recent MAC-to-IP-address mappings that have not been aged out.

show icmp statistics

Description: This command displays statistical information associated with the Internet Control Message Protocol (ICMP).

	Received	Transmitted
Dest Unreachable:	0	0
Time Exceeded:	0	0
IP Header Error:	0	0
Source Quench:	0	0
Redirect:	0	0
Echo Request:	0	0
Echo Reply:	0	0
Timestamp Request:	0	0
Timestamp Reply:	0	0
Address Mask Request:	0	0
Address Mask Reply:	0	0
Calls to icmp error:		0
Messages Reflected:		0

show ip

Description: This command displays all interfaces on which IP routing has been enabled.

Example:

```
AIR101> show ip
```

Ifname	Admin. State	Oper. State	IP Address	Netmask	Destination/ Broadcast Addr
lan	Enabled	Up	192.168.168.13	255.255.255.0	255.255.255.0
isp1	Enabled	Inactive	(Unnumbered)		
MIP1	Enabled	Inactive	(Unnumbered)		

show ip isp1

show ip isp2

show ip lan

Description: This command displays the IP configuration over the specified interface.

Example:

```
Command> show ip lan
Interface: lan
```

IP Address:	192.168.168.92
Netmask:	255.255.255.0
Dest. IPAddress:	255.255.255.0
Opr./Admin. State	Up
RIP State	Active Ver.1
IP Multicast:	Disabled
RIP Spoofing:	Disabled

show ip statistics

Description: This command displays IP routing related statistics

Example:

AIR 101> show ip statistics

	Received	Transmitted
Packets Received	32424	
Datagrams Generated Locally	1133	
Packets Forwarded		0
Datagrams Delivered to Upper Layer		1714
Raw Packets Sent		0
Redirects Sent		0
Packet drops:		
IP Header Errors	3	
Unknown Protocols	0	
Not Forwardable	1819	
DONT_FRAGMENT Bit ON:	0	
No Buffers	0	
No Route:	0	
Fragmentation:		
Total Fragments	0	0
Datagrams Reassembled	0	
Datagrams Fragmented for Output		0
Fragments Dropped after Timeout	0	
Fragments Dropped (Duplicates/No Space)	0	

show tcp statistics

Example:

AIR 101> show tcp statistics

	Received	Sent
Total Packets	508	577

Show udp statistics

Example:

AIR 101> show udp statistics

	Received	Delivered
Total datagrams	9	0
Datagrams with checksum error	0	
Datagrams with incorrect length	0	
Datagrams dropped due to buffer full	0	
Datagrams with dest. port unreachable	0	

Note: Multi-connection IP (MIP) Commands: Multi-connection IP (MIP) is the technology used to combine two Internet accounts to work together to provide increased bandwidth to the Internet. These commands allow the user to display information about the MIP group.

show mip

Description: The profiles associated with the multi-connection IP group are displayed, along with the current operational setting of the MIP group.

show mip statistics

Description: The statistics associated with the multi-connection IP group are displayed.

Port Commands

Port related commands are available for clearing statistical counters, enabling/disabling ports, and displaying port configuration and statistics.

clear port statistics port 1

clear port statistics port 2

Description: This command clears port statistics. If a port is not specified, the statistics counters on all ports are cleared.

enable/disable port 1

enable/disable port 2

Description: This command enables or disables a port.

show port

Description: This command displays the configuration information for all ports.

Example:

```
AcerRouter> show port
Port Name :    1                Port Type :   MODEM
Admin Status:  No call
Port speed:    auto-115200      Init String:  unspecified

Port Name :    2                Port Type :   MODEM
Admin Status:  No modem
Port speed:    auto-115200      Init String:  unspecified
```

show port 1

show port 2

Description: This command displays the configuration of a modem port.

Example:

```
AcerRouter> show port 1
Port Name :    1                Port Type :   MODEM
Admin State :  Enabled
Admin Status:  No call
Port speed:    auto-115200      Init String:  unspecified
```

show port statistics 1

show port statistics 2

Example:

```
Command> show portstatistics 1
```

	Received	Transmitted
Total packets	0	0
Total bytes	0	0
Total errors	0	0

Profile Commands

This section details the commands used to display information about Internet profiles. Internet profiles contain all the information needed for connections with an ISP.

clear profile statistics

Description: The statistics fields in all configured Internet profiles are reset to their initial values with this command.

clear profile statistics isp1

clear profile statistics isp2

Description: The statistics fields in the specified Internet profile are reset to their initial values with this command. If no profile name is specified, the statistics of both profiles are cleared.

connect profile isp1

connect profile isp2

Description: This command activates the profile as if a trigger occurred.

disconnect profile isp1

disconnect profile isp2

Description: For active Internet profiles, this command terminates the connection as if an idle timeout occurred.

show profile

This command displays a summary of all configured Internet profiles.

Example:

```
Command> show profile
Prof Name    Type      AdminState   Remote DN    Call Action
-------------------------------------------------------------
isp1         Modems    Enabled      5559357      Dial only
isp2         Modems    Enabled      5559357      Dial only
```

show profile isp1

show profile isp2

Description: The details of a configured Internet profile are displayed.

Example:

```
AcerRouter> show profile isp1
Profile type:              Modems      Admin. State:        Enabled
Call Action:               Dial only   Remote DN:           5553500
Clid Auth:                 No          Caller ID:
Call Back:                    No          Call Back #:
PPP Oper. State:           Down
Max Receive Unit :         1524
User Account Name :        account1
Remote System Name:
Send Auth. Type:           Either      Recv Auth. Type:     None
TCP/IP VJ Compression:     Disabled    Inactivity Timeout:  300
Multilink Type:            Disabled
```

Show profile statistics

Example:

Command> show profile statistics

Prof Name	Oper. State	Packets Sent	Packets Rcv'd	Errors Sent	Errors Rcv'd	Q-full Discar
isp1	Down	0	0	0	0	0
isp2	Up	4332	561	0	0	0

show profile statistics isp1

show profile statistics isp2

Example:

Command> show profile statistics isp1

isp1	Received		Transmitted
Total octets:	0		0
Total packets:	0		0
Total errors:	0		0
PPP Statistics			
Total control packets:	0		0
Total data packets:	0		0
IP packets	0		0
PPP Error Statistics			
Unsupported protocols:	0	Code rejects:	0
Bad addresses:	0	Bad controls:	0
Bad FCSs:	0	Packets too long:	0

Statistics Commands

clear port statistics

Description: Refer to this command under Port Commands.

clear port statistics port 1

clear port statistics port 2

Description: Refer to this command under Port Commands.

clear profile statistics

Description: Refer to this command under Profile Commands.

clear profile statistics isp1

clear profile statistics isp2

Description: Refer to this command under Profile Commands.

show icmp statistics

Description: Refer to this command under IP Commands.

show ip statistics

Description: Refer to this command under IP Commands.

show mip statistics

Description: Refer to this command under IP Commands.

show port statistics 1

show port statistics 2

Description: Refer to this command under Port Commands.

show profile statistics

Description: Refer to this command under Profile Commands.

show profile statistics isp1

show profile statistics isp2

Description: Refer to this command under Profile Commands.

show tcp statistics

Description: Refer to this command under IP Commands.

show isp1 statistics

show isp2 statistics

show lan statistics

Description: This command displays statistical information associated with the specified profile or the LAN.

Examples:

```
AcerRouter> show isp1 statistics
  interface: isp1
```

	Received	Transmitted
Total packets	0	0
Total octets	0	0
Multicast packets	0	0
Errors on interface	0	0
Packets dropped	0	
Packets with unsupported protocol	0	
Last update time (sec)	0	

```
AcerRouter> show lan statistics
interface: lan
```

	Received	Transmitted
Total packets	825	456
Total octets	75425	104293
Multicast packets	0	0
Errors on interface	0	0
CSMA collisions	0	
Packets dropped	0	
Packets with unsupported protocol	0	
Last update time (sec)	1599	

System Commands

change password

Description: This command allows the user to change the password used to log on to the Command Line Interface or the Internet Configuration Console utility. A password is a character string that starts with a letter and contains at least 6 and up to a total of 15 alphanumeric characters. The password is case sensitive. The default factory setting is "password".

If you forget the Internet Configuration Console password, the only way to recover is clear the entire configuration and return the unit to its original state as shipped from the factory. Unfortunately, this means that you have to re-enter all of your configuration data.

To clear the configuration and restore the password to the default, follow these steps:

Connect a console to the AIR-104/204 Aux/Console port. Turn off the AIR-104/204, then turn it on again. In the console window, youll see the message Loading firmware... When you see the message "Ready", immediately (within one second) press Control-C. The AIR-104/204 will now reset. When this is complete, the AIR-104/204 will return all settings to the factory default. The password will once again be "password".

Example:

Command> change password
Please enter the old password: ********
Please enter the new password: ********
Please re-enter the new password: ********
Password has been successtully changed

clear config

Description: This command is used to clear the contiguration data in the flash memory. After clearing, the system will reboot. All user-configured data are lost. The configuration will return to the tactory default settings.

disable/enable remote-mgt

Description: This command allows the administrator to lock out or enable both browser and telnet management connections. Only a direct console connection is supported if remote management is disabled.

download config <filename> from <ipaddr>

Description: This command causes the configuration tile <fileName> to be downloaded to the system from a tftp server with the specified IP address.

Example:

Command> download config ar104.cfg from 205.51.23.12

download firmware

Description: This command causes the product firmware to be downloaded to the system from a directly attached PC running the terminal emulation software (one with z-modem file download capability). Note that this command cannot be used from a telnet session. This is an alternative to downloading the software using the Internet Configuration Console browser utility.

Since the router will reset after this operation is complete, the system will tirst prompt tor the confirmation. The system will ask the user to select the download speed. The user may then change the terminal baud rate tor a taster download and press enter to continue (some terminal emulators require a disconnect followed by a connect in order tor the changed parameters to take effect). Select the Z-modem protocol for use in downloading the firmware. The user then selects (opens) the firmware file for actual downloading.

Upon completion of the download, the router will reset and is therefore intrusive to any active Internet session.

help

(This list may differ depending upon the AIR-104/204 model):

Example:

Command> help

Commands are categorized as follows:

(1) Diagnostics	(2) IP	(3) Port
(4) Profile	(5) Security	(6) Statistics
(7) System		

```
Please enter a selection number [1...7] for more detail information: 1
  connect profile <profile name>
  disable trace
  disconnect profile <profile name>
  enable trace
  ping <ip addr>

  ping <ip addr> <integer >=1> <packet length, >=56>
  test modem <port number> <dial number>
Please enter a selection number [1..7] tor more detail information:
```

logout

Description: This command logs the user out ot the system.

reset system

Description: This command allows the user to reset the system. A confirmation will be displayed.

save config

Description: This command saves any contiguration changes to the flash memory.

In the background, the system is already periodically checking to see if any configuration changes have been made. It so, the entire configuration will be automatically saved to the tlash memory. However, this command can also be used to execute the save operation immediately after some configuration changes, e.g., when the user intends to power down the system.

set console baud <baudrate>

Description: This command is used to set the baud rate tor the auxiliary (console) port. The default baud rate is 19200 bits per second. After the baud rate is changed, the console will no longer work properly until the terminal baud rate is changed accordingly. Other allowed speeds include 115.2K, 57.6K, 38.4K, 28.8K, 19.2K, 14.4K, 9.6K, 4.8K, 2.4K, and 1.2K.

Example:

```
Command> set console baud 19200
```

set console timeout <1-60>

Description: This command is used to set the console time-out value (in minutes). The default value is 10 minutes. That means if the user does not type anything on the console tor 10 minutes, the console session will automatically be terminated.

This timeout value also applies to telnet sessions.

Example:

```
Command> set console timeout 20
```

set date <mm-dd-yy>

Description: This command sets the current date in the AIR-104/204.

Example:

```
Command>  set date 4-12-96
```

Set log level <1-10>

Description: This command changes the system log level, causing different events to be logged into the system log table. It is often used for debugging purposes. The default log level is 2, which means all events belonging to log level 2 or below will be logged into the system log.

set prompt <prompt>

Description: This command defines a new command prompt. A prompt of up to 15 characters may be entered. The default prompt is Command>.

Example:

```
Command> set prompt "Yes, Master"
Yes, Master>
```

set time <hh:mm:ss>

Description: This command sets the time of the day (24-hour clock). Note that the time will normally be set automatically when a browser first connects to the router using the Internet Configuration Console utility.

Example:

```
Command> set time 20:33:00
```

set timezone <-12- +12>

Description: This command specifies the time zone for the AIR-104/204 location as an offset from Greenwich Mean Time (GMT). The time zone is normally set automatically when an HTTP browser first connects to the router using the Internet Configuration Console utility.

Example:

```
Command> set timezone -8
 Time Zone is set to GMT-8 hours.
```

show config

Description: A concise summary of the AIR-104/204 configuration is displayed.

Example:

```
AcerRouter> show config
IP Addr: 192.168.168.13          NetMask: 255.255.255.0      IP/IPX RIP: D/D
Port 1: MODEM  PPP   ENABLED     Speed = Auto detect
Port 2: MODEM  PPP   ENABLED     Speed = Auto detect
```

show connection log

Description: The connection log is displayed by the system. Up to 128 entries are maintained by the router in wraparound fashion. For a complete description of these entries, see Chapter 5, *Advanced Configuration.*

Example:

```
Command> show connection log
1 9/14/99 22:15:38 N/A(N/A): Triggered Detail: IP/TCP 192.168.188.229->63.192.
151.44 1905->139
2 9/14/99 22:18:28 Modem 1(isp1): Connected Detail: Outgoing Call to 14085553456
```

show interface list

Description: This command displays the status of all interfaces in the system.

AcerRouter> show interface list

Ifname	Type	Oper. State	MTU	IP Status	Comp. Status
lo	LOOPBACK	Up	1536	Enable	Disable
lan	ETHERNET	Up	1500	Enable	Disable
isp1	PPP	Down	1500	Enable	Disable
MIP1	UNKNOWN	Up	2048	Enable	Disable

show internet access time

Description: The current setting of the Internet time restriction is displayed. See *set internet access time* for details.

Example:

```
Command> show internet access time
Day-of-the-week   : Mon-Sat
Time-of-day       : 13:30- 5:00
```

show system

Description: This command displays system-related configuration.

Example:

```
AcerRouter> show system

System Name: Acer Router                Up Time:  0 months  0 days 01:08:00
-------------------------------------------------------------------------------
system description:    Internet Access Device
system contact:        Unknown
system location:       Unknown

Total Serial Ports: 2              S/W Version:  1.01a   H/W Version:  1.0

MAC Address:                       00-80-20-01-00-00
Console Baud Rate :                19200
Console Timeout:                   10(min)

Remote Management State:  Enabled
DHCP State:       Enabled

Private IP address: 192.168.188.13  network mask 255.255.255.0
PAT IP address.   192.168.168.13  network mask 255.255.255.0
```

Show system log

Description: The system log contains logs of various events of interest, depending on the log level set at the time. Common events include login, an Internet connection goes up or down (log level 2), ... as well as certain protocol progress messages for debugging purposes.

This command shows the next 22 entries of the system log. For example, if there are 60 entries in the log, the first show system log command will show log entries 1 through 23, the next command will show entries 24 through 46, and the next command will show entries 47 through 60, followed by 1 through 9. When the system powers up, the log is re-initialized and contains no entries. As time passes, when the 128-entry log table becomes full, new entries will simply replace the oldest entries, thus a first-in, first-out scheme is used.

Example:

```
AcerRouter> show system log
 1 12/13/99 20:38:20 Modem: port 1 start to autobaud
 2 12/13/99 20:38:20 Modem: port 2 start to autobaud
 3 12/13/99 20:38:20 IP RIP: Set IP rip mode to: 0x3
 4 12/13/99 20:38:20 Modem: port 1 autobaud successfully
 5 12/13/99 20:38:21 Modem: port 1 has been initialized
 6 12/13/99 20:38:22 Modem: port 2 autobaud successfully
 7 12/13/99 20:38:23 Modem: port 2 has been initialized
 8 12/13/99 20:38:42 Console Port: login from tty0 (telnet)
 9 12/13/99 20:40:02 Modem: port 1 dial
10 12/13/99 20:40:35 KERNEL: modem link is up
11 12/13/99 20:40:35 ASYNPPP:  Event 6, ppp3073 input:
12 12/13/99 20:40:35 ASYNPPP:  Event 6, 42 49 53 0d 0a
13 12/13/99 20:40:35 PPP: PPP Link Up: isp1
```

show telnet session

Description: This command is used to display all existing telnet sessions.

Example:

```
AcerRouter> show telnet session
Session Id      Remote Ip                       Remote Port
-------------------------------------------------------------------------------
1               192.168.168.120                 1221
```

show time

Description: This command shows the time zone, daylight savings time setting, date and time of the day. For AIR-104/204 systems, the time is only correct after an HTTP session has accessed this system or the time has been manually set using the set time command.

Example:

```
AcerRouter> show time
 Time (GMT-8) (Standard Time) : Mon Dec 08 17:07:21 1999
```

upload config <filename> to <ipaddr>

Description: This command causes the system configuration to be uploaded to the specified tftp server (whose IP address is 205.51.23.12) as a file called <*fileName*>.

Example:

```
Command> upload config ar204.cfg  to 205.51.23.1
```

Appendix A Messages

This appendix lists the messages that may appear in the Internet Configuration Console Message Window or in the Command Line Interface.

System messages

"Account name and/or password not accepted"

User name or password failed authentication by the ISP.

"Browser passing command failed. Please try again."

A transient error occurred during the communication between the browser running on the management PC and the router. Re-try the operation.

"Call operation in progress. Request ignored"

An "Apply and Test" is pressed when a call is already connected or the modem is in use.

"Cannot perform operation. Port or profile is currently disabled"

An outgoing call was attempted on a port that is disabled.

"Clear system configuration and restart, please wait..."

This message is displayed when router is in the process of clearing all system configuration and then resetting.

"Connection successful"

A successful connection has been established.

"Destination not currently reachable"

Either the phone line is not operational, or the destination is busy or doesn't answer.

"Disconnecting... Please wait"

This message is displayed whenever the link is in the process of disconnecting.

"Download firmware, please wait (2 minutes)..."

System is downloading new firmware. It takes about two minutes to complete the operation.

"Embedded HTTP server has been disabled. Only console can configure the system"

The message is displayed when remote management has been disabled in the command line interface. You will not be able to contigure or view configuration trom the HTTP intertace until remote management is once again enabled. You can only use a directly connected console (PC running Hyperterminal) to run the Command Line Interface.

"Error: File Invalid"

The tirmware tile specified is either missing or invalid.

"Link is disconnected"

This message is displayed after disconnecting modem link operation is completed.

"Link is already disconnected"

This message is displayed when an attempt is made to disconnect an inactive modem port.

"IP Address is invalid."

The IP address entered as the private address was not valid.

"Management session time out"

The message is displayed when HTTP or telnet management session is idle for more than the default time out ot 10 minutes, or the configured time out.

"Phone number limits characters to [0123456789,;-0]"

An invalid character has been entered in the phone number field. The acceptable phone number characters are numbers from 0 to 9, and the characters "[" "]" "," ";" "-".

"Phone number seems to be incorrect"

The destination phone number is not correct or can't be reached.

"Placing modem call. Please wait..."

The router is now in the process of contacting the remote site.

"Resetting system, please wait..."

The message is displayed when the router is in the process of resetting. You can logon to the router after about 30 seconds.

"Save configuration succeeded"

The configuration was saved to tlash memory successfully

"Search fail"

An internal error has occurred.

"Sorry, the router is already being managed by "xxx.xxx.xxx.xxx". Concurrent management is not allowed!"

Another session is active on the PC with the specified address. The system only allows one HTTP management session at any given time.

"Parameters Accepted" / "Applied Parameter Accepted"

All parameters on the page were acceptable for use by the router.

"Statistics Cleared"

The AcerRouter has completed a clear statistics operation on the link selected in the System Status Monitoring Window.

"Syntax error, IP address should be xxx.xxx.xxx.xxx"

An invalid IP address is entered. A valid IP address should consist of a set of four three-digit numbers. Each three-digit number should be a number between 0 and 255, inclusive.

"Test successful"

The "Apply and Test" operation is successful.

"The Internet access time is configured successful"

This message is displayed when the Internet access time configuration is accepted by the router.

"The new password does not match the confirmed password"

The confirmation password entered is not the same as the new password entered during the password operation.

"The new password is the same as the old password"

The new password is the same as the old password.

"The password has been changed"

The new password is configured. Your new password will take effect the next time you logon.

"There is an active window monitoring the system status on 'xx.xxx.xxx.xxx'."

A system status monitoring window is opened on the PC with the indicated IP address (xxx.xxx.xxx.xxx). Only one system status monitoring window is allowed at a given time.

"The system is disconnecting"

A "disconnect" button is pressed, while the system is in the process of disconnecting an active modem link.

"The system time has been configured successfully"

The time has been configured successfully.

"Value for idle time is invalid - choose between [0, 3600]"

The value for the idle time parameter was entered incorrectly. The correct values are 0 if no idle timeout is desired, or one to 3600 indicating the number of seconds since the link has not carried any data traffic before it is automatically disconnected.

Connection log messages

These messages inform you of the time and date associated with an application trigger, a modem connect or a disconnect event.

mm-dd-yy hh:mm:ss Triggered *[protocol - IP Addresses - Ports]*

mm-dd-yy hh:mm:ss Connected *[Outgoing Call to <number>][ConnSpeed][Assigned IP Address]*

mm-dd-yy hh:mm:ss Disconnected

Embedded HTTP server messages

These are messages which the HTTP browser will generate should problems occur during configuration. Their appearance may differ from browser to browser.

HTTP/1.0 404 File Not Found

The server has not found anything matching the Request-URL. No indication is given of whether the condition is temporary or permanent.

HTTP/1.0 500 Internal Server Error

The server encountered an unexpected condition which prevented it from fulfilling the request.

Appendix B Glossary

This section provides some common networking terms you may find in this user guide

DHCP

DHCP is a protocol for automatic IP configuration. Client side computer can get one IP address from a DHCP server automatically. Using DHCP can save the effort of setting IP addresses for every LAN computer.

domain name

A name that identifies one or more IP addresses. For example, the domain name microsoft.com represents about a dozen IP addresses. Domain names are used in URLs to identify particular Web pages. For example, in the URL http://www.pcwebopedia.com/index.html, the domain name is pcwebopedia.com.

IEEE

Abbreviation of Institute of Electrical and Electronics Engineers, pronounced I-triple-E. Founded in 1884, the IEEE is an organization composed of engineers, scientists, and students. The IEEE is best known for developing standards for the computer and electronics industry. In particular, the IEEE 802 standards for local-area networks are widely followed.

Internet

A global network connecting millions of computers. As of 1998, the Internet has more than 100 million users worldwide, and that number is growing rapidly. More than 100 countries are linked into exchanges of data, news and opinions.

intranet

A network based on TCP/IP protocols belonging to an organization, usually a corporation, accessible only by the organization's members, employees, or others with authorization.

IP address

An identifier for a computer or device on a TCP/IP network. Networks using the TCP/IP protocol route messages based on the IP address of the destination. The format of an IP address is a 32-bit numeric address written as four numbers separated by periods. Each number can be zero to 255. For example, 1.160.10.240 could be an IP address.

ISP

Short for Internet Service Provider, a company that provides access to the Internet. For a monthly fee, the service provider gives you a software package, username, password and access phone number. Equipped with a modem, you can then log on to the Internet and browse the World Wide Web and USENET, for example, and send and receive e-mail worldwide.

local area network (LAN)

A computer network that spans a relatively small area. Most LANs are confined to a single building or group of buildings. However, one LAN can be connected to other LANs over any distance via telephone lines and radio waves. A system of LANs connected in this way is called a wide-area network (WAN)

MAC address

Short for Media Access Control address, a hardware address that uniquely identifies each node of a network. In IEEE 802 networks, the Data Link Control (DLC) layer of the OSI Reference Model is divided into two sublayers: the Logical Link Control (LLC) layer and the Media Access Control (MAC) layer. The MAC layer interfaces directly with the network media. Consequently, each different type of network media requires a different MAC layer.

ping

A utility that can be used to send a packet to a remote device (expecting the same packet to be echoed back if the destination is functioning properly). This is often used to check if a remote device is reachable or not, and what the round trip delay is. Some variation of the utility also provide detailed routing information such as which intermediate routers the packet goes through, so that if the echo packet does not come back, the break in the path can easily be identified.

PPP

PPP (Point-to-Point protocol) is a communications protocol for transmitting information over standard telephone lines. A PPP account is a dial-up account used to connect to the Internet. It is a dial-up account that actually communicates with another computer to gain Internet access.

router

An intelligent, multi-network interface device that will forward a packet received from one interface to another. When a packet is received, its destination network address is checked against the routing table. Then the router determines where to forward the packet. This next destination should, in theory, be one hop closer to the final destination.

TCP/IP

Acronym for Transmission Control Protocol/Internet Protocol, the suite of communications protocols used to connect computers on the Internet. TCP/IP uses several protocols, the two main ones being TCP and IP.

Telnet

A terminal emulation program for TCP/IP networks such as the Internet. A Telnet client program runs on your computer and connects your PC to a Telnet server elsewhere in the network. You can then enter commands through the Telnet program and they will be executed as if you were entering them directly on the server console. This enables you to control the server and communicate with other servers on the network. To start a Telnet session, you must log in to a server by entering a valid username and password.

Appendix C Specifications

Hardware configuration

- Four-port 10/100Base-T Ethernet repeater hub
- One RJ-45 RS-232 connector for management console
- Two RJ-45 asynchronous RS-232 ports (AIR-104)

  or

  One RJ-45 asynchronous RS-232 port, two RJ-11 ports for Phone / Line (AIR-204)
- 12VDC/1.5A input - External Power Adapter
- Six set of LEDs (20 LEDs) to indicate the COM, LAN, Collision of LAN, Diagnostic and Power status

Applications

- Dial-up Internet access using the industry standard Point-to-Point Protocol
  - Automatic acquisition of ISP-assigned public IP address
  - One or two Internet Accounts shared by multiple users on the LAN through Port Address Translation and Multiconnection IP technology
  - Dial-on-Demand
  - Bandwidth-on-Demand using MIP (Multiconnection IP) technology to maximize the performance of multiple WAN connections

Management

- Web-based Manager – Internet Connection Console (ICC) for easy network management
- Command Line Interface via Telnet or directly attached console terminal (or PC running terminal emulator)
- Dynamic Host Configuration Protocol (DHCP) automatically assigns private IP addresses, Gateway and DNS addresses to client computers on the LAN
  - Static DHCP assignments (up to 20)
- Connection Log provides detailed records of dialup usage
- System Date/Time setting and Internet access control via day and time ranges
- Flash EPROM for easy firmware upgrade and non-volatile configuration storage
- Extensive troubleshooting and diagnostic capability through the Command Line Interface

Security

- Private IP addresses not accessible from the Internet
- Password protection for management tools
- Remote Management lockout capability

General

PPP, IP, TCP, UDP, ICMP, telnet

IP level load sharing (Multilink IP) - Proprietary

Relevant IETF standards

Dimension

215 x 149 x 33.6 (L x W x H, mm)

Weight

AIR-104 : 978g

AIR-204 : 1013g

Environment

Operating Temperature : 0¢X~ 50¢XF

Storage Temperature : -20 ¢X~ 70¢XF

Relative Humidity : 20% ~ 80%

Electrical

External 12V DC power supply

Appendix D Warranty, Copyrights, EMI

Warranty

Acer Netxus Incorported's networking products are provided with a limited 2 year Warranty. Details of the warranty and return process are explained in the Warranty Policy below. Warranty service is subject to the terms and conditions of the Acer Netxus Warranty Policy.

1. WARRANTY:

Acer Netxus Incorporated ("ANI") provides the AIR-104/204 (the "Product") with a two (2) year limited warranty, except for the power supply unit, which carries a one (1) year limited warranty (collectively the Warranty).

The Warranty covers:

(1) Defects in materials and workmanship of the Product under normal use and service (Product Defects).

(2) Failure of the Product to perform in accordance with product specifications published by ANI (Product Performance).

This Warranty is in lieu of all other express warranties that might otherwise arise with respect to the Product. No individual or organization of whatever form, connected to Acer Netxus or not, has authority to change or add to this Warranty.

This Warranty does not apply to any failure of the Product which results from accident, abuse, misapplication, alteration, or failure due to attached equipment, and Acer Netxus assumes no liability as a consequence of such events under the terms of this Warranty. While Acer Netxus has made every effort to provide clear and accurate technical information about the application of the Product, ANI assumes no liability for any event arising out of the use of this technical information.

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2. PERIOD OF WARRANTY COVERAGE:

The period of coverage is two (2) years from the date the equipment is purchased. There shall be no warranty after expiration of the period of coverage. ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR USE SHALL HAVE NO GREATER DURATION THAN THE PERIOD O F COVERAGE STATED HEREIN AND SHALL TERMINATE AUTOMATICALLY UPON THE EXPIRATION OF SUCH PERIOD.

3. HARDWARE SERVICE:

To obtain hardware service, contact the dealer from whom you purchased the Product. Product under warranty will be repaired or replaced according to the terms of the Acer Netxus Warranty Policy. After expiration of the warranty, you may elect to have the Product repaired by ANI, in accordance with the terms of this Warranty, except that you shall be responsible for all costs of repair, replacement and shipping and handling.

4. SHIPPING AND HANDLING:

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